

Social Media in Public Health Organizations:

A Case Study of Social Media Use in the Minnesota Department of Health

Capstone Paper

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Executive Summary

Objective: As social media evolve quickly, they also become a favorable place for people to search for health information. Although social media are used in engagement, most government agencies and nonprofit organizations are predominantly conducting one-way communication on social networking sites. Therefore, it is important to explore more effective strategies that can be applied appropriately in public health organizations. This study aims to analyze the Twitter, Facebook, and YouTube channels of the Minnesota Department of Health and provide recommendations for strategic social media use in public health organizations.

Methods: Both qualitative and quantitative methods were used to understand MDH's social media usage. The researcher first reviewed MDH's three major social media platforms and provided descriptive statistics of MDH's current behaviors on each site. This was followed with a content analysis of communication types on each platform. To illustrate preferences and barriers of social media use from an organizational perspective, three semi-structured interviews with four key social media staff at MDH were conducted to provide a situational analysis of MDH's communication strategy. Three interpretive interviews with local social media experts were performed to help provide recommendations for strategic social media use in government health agencies.

Results: MDH mainly uses Twitter to disseminate news and update about the agency's work and events; uses Facebook to personalize the organization by employing images and storytelling in content; and uses YouTube for public education and to support public health campaign work. The department lacks designated staff that can devote enough time on social media. Complicated legal processing system also impedes the progress of social media use in state agencies. In addition the department lacks internal collaboration with divisions. Under a centralized communication structure, only a few divisions are the major content contributors actively pursuing the goal of engagement.

Conclusion: Although MDH sets a goal of achieving a higher level of engagement on

social media and has been making efforts to do so, there still is plenty of room for improvement. In view of MDH's current situation, the department may consider adjusting its goal of engagement to meet the organization's capacity. The department may also consider changing to a decentralized communication structure, which will allow divisions to have more flexibility in engaging with target audiences. In addition, the department could improve its content strategies to generate more effective two-way communication.

Introduction

“We now have 4 million Americans who have signed up for quality private health insurance through the marketplace,” the Obama administration retweeted a post from President Obama on February 25th, 2014 and got 532 retweets. Two months later, @Obamacare tweeted another post saying, “Yes we did” with a picture of 8 million Americans who had signed up for health insurance. The Obamacare’s Twitter account illustrates a vivid example of how a public health organization uses social media to engage with citizens.

Social media sites have become an indispensable component of people’s daily lives. As of January 2014, 74% of online adults had been using social networking sites, such as Facebook (71%), and Twitter (23%) (Pew Research Center, 2014). As social media evolve quickly, they also become favorable places for people to search for health information. A Pew Research Center’s report (2012) shows that 72% of adult Internet users say they have looked online for health information, such as specific diseases and treatments; and a quarter of the respondents say that they have read or watched other people’s stories about medical and health experiences online. In this circumstance, it is necessary to incorporate social media into health care communication.

Social media techniques are widely adopted by PR practitioners because they help reach diverse audiences and initiate real-time conversations with them. In recent years, many health providers have been actively launching campaigns and building online health communities on social networking sites. A great example is Mayo Clinic. In 2010, Mayo Clinic created a social media center to manage its online presences and leverage the power of social media to build its brand. Now the organization has 640,000 fans on

Facebook and 1,180, 000 followers on Twitter, which makes a strong connected online Mayo community. However, although many studies recognize branding, customer focus and interactivity as the key values operating on social media (Edelman, 2010; Sashi, 2012), most studies focused on the business sector. Limited attention has been paid to social media use in public health organizations. Comparing to the business sector, nonprofit organizations and government public health departments are lagging behind in strategic digital communication.

Recent study has shown that 60% of state health departments are using at least one social media application; 86.7% of them have a Twitter account, 56% a Facebook account, and 43% a YouTube Channel. Yet they are having problems in engaging followers, reaching target audiences, and communicating effectively (Thackeray et al., 2012). In addition, there is a lack of systematic review of data and content indicating that social media are being adequately used by public health organizations (Heldman, Schindelar & Iii, 2013). Therefore, it is important to explore more effective strategies that can be applied appropriately in nonprofit and public health organizations.

Interested in understanding how public health organizations use social media channels to engage citizens, this study selects a state public health agency, the Minnesota Department of Health (MDH), as the target organization to conduct a case study.

Background: Minnesota Department of Health

Minnesota Department of Health (MDH) is committed to “protecting, maintaining and improving the health of *all* Minnesotans” (Mission Vision and Values, MDH). MDH defined six frameworks goals, and each goal has three segments to specify how the

department will accomplish its vision to keep all Minnesotans healthy (Figure 1).

According to MDH agency's overview (Figure 2), the department has four major bureaus:

Protection, Improvement, Systems, and Operations under the commissioner's office.

Having 1,500 employees and approximately \$500 million in funds from federal and state government, MDH is able to operate seven divisions that include Community and Family Health, Environmental Health, Health Policy, Health Promotion and Chronic Disease, Infectious Disease Epidemiology, Prevention and Control Division, Health Regulation, and Public Health Laboratory.

In a joint effort, those divisions are dedicated to operationalizing the department's mission, vision and goals within the areas of their own expertise. As shown in the organizational chart (Figure 1), the department has a complicated environment of internal communications. Working collaboratively with MDH divisions and local health partners, the MDH communications team is charged with making the department trustworthy, transparent, and accountable to all citizens. In alignment with the department's overall mission and goals, MDH's communications objectives can be summarized into three categories:

- Promote the state's health services
- Enhance public awareness
- Improve citizen participation

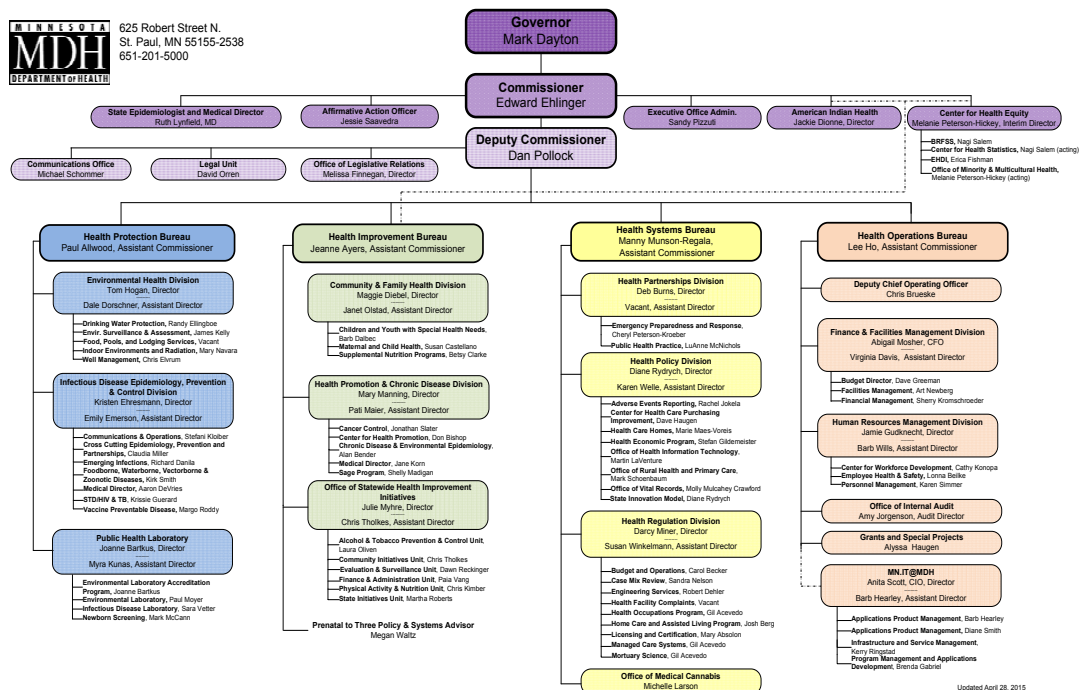
As one of the earliest Twitter adopters among its peers, MDH was nominated as the 13th most social media friendly state health department nationwide in 2013 (Sanches, 2013). As a leading public health organization, MDH is exploring how to build an online health community that engages more wide and diverse populations within the state in a

more effective and practical manner.

Figure 1. MDH vision, mission, and goals

Minnesota Department of Health Vision, Mission, and Goals: A Framework for Public Health						
MDH VISION: Keeping all Minnesotans healthy.						
MDH MISSION: Protect, maintain and improve the health of all Minnesotans.						
Framework Goals	Promote health throughout the lifespan.	Make physical environments safe and healthy.	Prevent the occurrence and spread of disease.	Prepare for and respond to disasters and emergencies.	Help all people get quality health care services.	Assure strong systems for health.
Eliminate health disparities and achieve health equity.						
MDH GOAL STATEMENTS	1. All Minnesotans are given a healthy start in life.	4. Minnesota's food and drinking water are safe.	7. Individuals and organizations in Minnesota understand how to prevent disease.	10. Emergencies are rapidly identified and evaluated.	13. Health care in Minnesota is safe, family and patient-centered, effective and coordinated.	16. Minnesota's infrastructure for health is strong, people-centered, and continues to improve.
	2. Minnesotans make healthy choices.	5. Minnesota's air, water and soil are safe and non-toxic.	8. Individuals and organizations in Minnesota practice disease prevention.	11. Resources for emergency response are readily mobilized.	14. Health care services are available throughout Minnesota.	17. Minnesota's health systems are transparent, accountable, and engage many diverse partners.
	3. Minnesotans create social environments that support safe and healthy living at all ages.	6. The built environment in Minnesota supports safe and healthy living for all.	9. Disease threats are swiftly detected and contained.	12. Minnesota's emergency planning and response protects and restores health.	15. All Minnesotans have affordable coverage for the health care they need.	18. Government policies and programs support health.

Figure 2. MDH organizational structure



Research Questions

The purposes of this study are therefore fourfold: first, to provide a general overview of the adoption and implementation of social media at MDH; second, to examine the interactive communication patterns on MDH's social media platforms; third, to investigate key internal and external factors that affect MDH's current social media strategies; and last, to provide recommendations for strategic social media use in public health agencies. Four research questions are proposed:

RQ1 :How does the Minnesota Department of Health use Facebook, Twitter, and YouTube?

RQ2 : What kinds of communication patterns can be found in MDH's major social media platform?

RQ3: What are the strategic communication factors that influence MDH's social media use?

RQ4 : How can MDH improve social media strategies to effectively engage with its audience?

Literature Review

Theoretical Frameworks

One-Way and Two-Way communications

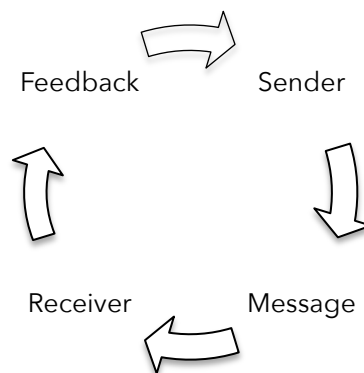
The chain of communication is made up of identifiable links, including sender, encoding, medium, decoding, receiver, and feedback (Kreitner & Cassidy, 2012, p.297). Sender and receiver are the two major players in a communication paradigm. The sender is the source of communication, which can be a person or an organization that has a message to deliver. The receiver decodes the message and interprets in his or her own way. An organization's external communication model can be simply categorized as

one-way and two-way based on the flow of information and interactions between the sender and the receiver. The communication process in one-way communication is linear and straightforward as it simply transmits information from the sender to the receiver. Two-way communication includes one more component – feedback from the receiver so that both sides listen to each other and make changes to work together in harmony (Kreitner & Cassidy, 2012, p.299).

Figure 3. One-way communication model



Figure 4. Two-way communication model



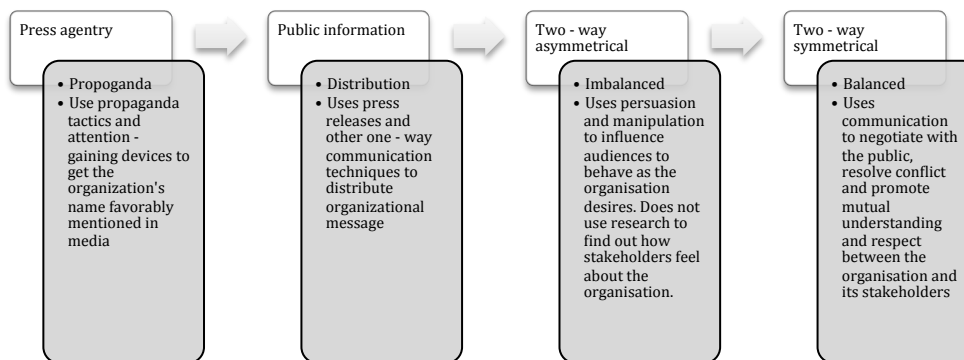
Four Public Relations Models

Grunig and Hunt (1984) proposed the Four Models of Public Relations to further describe the different forms of communication between an organization and its stakeholders. The four models are: (1) press agency, (2) public information, (3) two-way asymmetrical, and the (4) two-way symmetrical model.

These four models are representations of the values, goals, and behaviors held or used by organizations when they practice public relations (Grunig et al., 1995).

Press agency carries one-way communication, working as a propaganda seeking media attention. The public information model characterizes PR practitioners as journalists who use press releases and other one-way communication techniques to “disseminate what generally is accurate information about the organization but who do not volunteer negative information” (Grunig et al., 1995). The two-way asymmetrical model is more sophisticated because it initiates a two-way communication by using persuasive messages to influence audience’s behaviors as the organization desires.

Figure 5. The Four Public Relations Model



Two-way symmetrical model

Among the four models, the two-way symmetrical model is labeled as the most excellent communication model in public relations because it “involves establishing long-term relationships between an organization and its important public via balanced and open two-way communication” (Leichty & Springston, 1993, p. 328), and enables communication exchange, reciprocity, and mutual understanding (as cited in Stoker &

Berg, 2006). Scholars advocate two-way symmetrical model as it involves dialogic communication with the public, such as discussion, negotiation, and bargaining, which will theoretically create mutual benefits for both the organization and its public.

However, many scholars have challenged Grunig's (1989) claim on the grounds that two-way symmetrical model is idealistic (Pieczka, 1997; as cited in Stocker & Tusinski, 2006; Meiden, 1993), leading to flaws both theoretically and practically. Duffy (2000) reviewed five of the influential textbooks in post-secondary PR stressing the value of two-way symmetrical model but found no clear articulation in operation of two-way or balanced forms of public relations. With no clear tactics or methods, the idealistic simplicity of two-way symmetry may fail to match an organization's communication goal and its actual capacity (Meiden, 1993).

From an ethical perspective, adherence to two-way symmetrical approach motivates organizations to pursue agreement and mutual benefits with the public. In an ideal situation, dialogue is based on information sharing. The sender and receiver are completely open and equal in a symmetrical relationship and can fully exchange their information. However, it is difficult for organizations to create a completely equal communication environment with their various stakeholders. Some stakeholders may have greater power in resources and access, which gives them more priorities in the dialogic relationship. It is also possible for the sender to hide information that might discourage consensus or manipulate information to achieve the consensus. Therefore, dialogue is not always the balanced, fair approach we desire, because reaching an agreement and reaching an equality between sender and receiver may be considered morally questionable (Peters, 1999; Stoker & Tusinski, 2006).

In addition, by only pursuing the two-way symmetrical model, one fails to realize the power of the other three models in different circumstances. The goal of public relations is not only to promote consensus with audience, instead it has to identify and value the distinctive aspects of the audience, which requires a package of communication approaches, including dialogue, dissemination, and interpretation (Stoker & Tusinski, 2006).

Grunig and Hunt further added explanation to their two-way symmetrical conceptualization suggesting that although the symmetrical model is normative, an organization will find that a “different model works best for different problems” (Grunig & Hunt, 1984, p. 43, also cited in Duffy, 2000). Stoker and Tusinski (2006) reconsidered the legitimacy of dialogical communication and argued that information dissemination can be more reasonable than dialogue because it emphasizes “more integrity of the source and recognizes the freedom and individuality of the source.” They provided an alternative model, reconciliation, which recognizes and values individuality and differences to make sure integrity is not sacrificed at the altar of agreement.

In the real world, the boundary between two-way asymmetrical and two-way symmetrical communication is oftentimes blurred and a purely symmetrical model is less frequently used. Murphy (1991) has suggested a mixed-motive approach, which describes a “multidirectional scale of competition and cooperation in which organizational needs must be balanced against constituents’ needs” (as cited in Toth, 2009, p.87)

Despite the fact that Grunig’s model has been challenged by public relations scholars in recent years, it is still considered a significant theoretical foundation for public relations study and has particular values in the new media environment as public

relations embrace social media. With the sharing features and the many-to-many communication model, social media allow organizations to connect with the public in more productive, dialogic, and responsive ways. In recent years, the worldwide success of social media has changed the ability of organizations to practice two-way symmetrical communications.

A considerable number of studies have indicated that social media has the potential to make public relations more interactive, engaging, and socially responsible (Grunig, 2009; Macnamara, 2010; Morsing & Schultz, 2006; Waters & Jamal, 2010). However, although social media has been recognized as a revolutionary force that changes PR practices, its potential regarding the strategic use and management has not been fully explored. Many practitioners simply transferred traditional public relationships techniques to digital media, sharing information in uni-direction. For example, by studying 27 nonprofit organizations and their Twitter accounts, Waters and Jamal (2011) found that the majority of them continued to lack interactivity and engagement when using social media.

As two-way symmetrical communication moves to digital platforms, it requires an update of classic mass-communication theories to guide public relations practice. Given that a great number of organizations in both public and private sectors fail to capitalize on the interactive nature of social media, and only limited research has been undertaken to investigate the application of classic public relations theories in digital media settings (Waters & Jamal, 2011), it is important to revisit the conceptualizations of four PR models, especially the two-way symmetrical model and provide insights into their implementations in public relations practice.

Social media and online engagement

Social media, including social networking applications such as Twitter and Facebook, and media sharing sites such as YouTube, is based on user-generated content, online identity creation, and relational networking (Margo, Ryan & Sharp, 2009). These social media platforms allow users to share, exchange, and promote different types of content such as texts, photos, and videos.

Social media has acquired a large and rapid-growing audience. As to citizens' attitudes towards engaging with government agencies on social media, the Pew Research Center (2010) reported that two-thirds of surveyed Internet users and nonusers think providing general information, allowing for online contact and allowing users to complete specific tasks have higher relevance to them, which shows a growing trend of citizen engagement with government agencies.

Engagement is a term frequently mentioned by social media practitioners. The definition of engagement changes in different situations and with different measurement techniques. In a business setting, social media engagement is perceived as a core part of any social media strategy (Lepage, 2014), which simply means your audience's reaction to your posts. To be more specific, reactions such as *like*, *comment*, *click*, *share*, and *forward* are usually identified as the indicators of engagement. Each social networking site has its own measurement of engagement, and those indicators can vary from site to site. There is no fixed standard of an ideal level of engagement. Instead, a successful engagement is dependent on the organization's unique objectives. In the private sector, engagement is usually measured by sales, profits or online traffic (Cardenas, 2013; Souza, 2012).

It is more difficult to define engagement in the public sector. The development of social media in the public sector lags behind that in the private sector. As Mergel (2013) pointed out:

“Social media tools are still very new to most agencies and therefore best practices in the public sector. Departments following an engagement tactic have recognized the need of their audience to interact with government in a natural conversational style. Even though they are constantly exploring best practices, there are very little role models within government to mirror an interactive engagement approach” (p.128)

Engagement in the public sector is more abstract because most information released by public organizations is for educational and promotional purposes, which does not generate profits. Measuring success based on the increased use of public services due to social media is casual causation (Cardenas, 2013). For example, there is no sufficient event to attribute the success of a growing number of people getting HPV immunization to the HPV social media campaign.

In addition to the traditional quantitative indicators of engagement, Mergel (2013) suggested public agencies to pay more attention to qualitative data, such as content or comments, because they provide in-depth understanding of an audience’s intention and attitude towards engagement. With awareness of the differences between the public and private sectors in their drivers, missions, and goals, Mergel (2013) further provided a social media analytics for public agencies to measure social media engagement. This matrix has three dimensions covering public engagement, interaction, and reach in order

to help determine the quality of organization's engagement with public. But as to the impact of engagement on effectiveness and efficiency of government agencies transparency, collaboration, and participation, they are difficult to be measured strictly via social media platforms.

Although there is no clear research on measuring social media engagement, the number of followers and the number of times a post is being shared are mostly accepted as good indicators of engagement (Boyd, Golder, Lotan, 2010; Grant, Moon and Grant, 2010). A Twitter user's number of followers refers to the number of other people who indicate their interest in receiving information from the user and implies the level of the user's popularity on Twitter. Re-tweeting is one particular example showing the initiative of other users to spread your words and join the conversation by adding their own opinions through re-tweeting your status on their timelines. Re-tweeting has various meanings such as entertaining a specific audience, commenting on someone's tweet, or publicly agreeing with someone. The public is able to interact with government in direct and open conversations by adding more content or modifying the original message when re-tweeting.

Social media use in government

As social media use democratizes citizen online participation, federal, state and local governments have embraced social media to enhance their transparency and enable greater citizen engagement (Mergel, 2012; Wigand, 2010; Small, 2012; Java, Song & Finin, 2007). Previous studies have examined the role of social media in government's public relations work. For example, Wigand (2010) identified four major roles that

Twitter plays in governments: extending the reach of communication; updating and sharing information; building relationships; and collaborating with stakeholders. The first two roles essentially use the social media's information function and incorporate it with existing traditional media channels. The other two roles employ social media networking function, which echoes the idea of two-way symmetrical communication.

Citizens have shown growing interests in connecting with government agencies and officials in a wide range of online spaces. Citizens are not satisfied with simple Facebook or Twitter posts but have higher expectations of public service delivery (Pew Research Center, 2010). Therefore, for government agencies, their goal of social media use should go beyond one-way communication, simply providing information. More attentions should be paid to improving the way they provide information and deliver public services (Mickoleit, 2014).

Although social media has advantages in engagement and interactivity, its appropriate and effective use is still a challenge to most government agencies. While a considerable number of governments have adopted social media tools, few have a dedicated strategy or overarching plan for institutional use of social media (Mickoleit, 2014). Other concerns are about whether bureaucracies would be responsive in a timely manner under the social media pressure; and in contrast to private usage, how government should use social media to effectively support the public services (Landsbergen, 2010). Therefore, social media strategies are necessary to guide more successful use of social media in the public sector.

Social media strategies

Social media strategies are important because they allow organizations to think about what they want to do, what they should do, and what they need to do regarding their mission, goals, and capacities. Scholars argued that the character of social media will largely change the nature of relations between government and citizens (Leadbeater & Cottam, 2009; as cited in Meijer & Thaens, 2013). A great number of social media strategies emphasize two-way communication and believe social media help government to be more citizen- centered (Egger, 2005; Landsbergen, 2010).

For example, the White House provided a digital government strategy (Digital Government, 2014), which highlighted being “customer-centric” as one of their strategic principles. The customer-centric approach requires putting the customers first whether they are internal or external to the organization, and coordinating across agencies to ensure the government's information is accessible and available to its customers. It also emphasizes measuring performance and customer satisfaction to improve service delivery.

To help governments fully use the strengths of social media to promote civic engagement, Mergal (2012, 2013) provided a fourfold social media strategy. First, the push strategy refers to how agencies’ limited resources are invested into content creation and promotion. Agencies have low awareness of the importance of social media. Informational content such as short, direct news and facts allows for little innovative interaction and engagement. Second, pull strategies are similarly, but with the intention of generating user traffic to a certain destination, for example, the agency’s webpage. Audience can be invited to co-produce content with the poster. Third, the networking

strategy goes beyond one-way communication. The networking strategy is more proactive in interacting with audience. It takes initiative to start a conversation and call for participation. Finally, the customer service strategy requires the organization to conduct higher level of engagement with the public. It also suggests agencies provide customized service to interact with particular users. For example, agencies can answer citizens' questions or give feedback directly. The expense and the level of engagement increase as the agency moves from the first to the last strategy.

Table 1. Social media strategies

Type of strategy	Type of communication	Role of social media
Push strategy	One-way	Content creation and release; broadcasting channel
Pull strategy	One-way	Information release and citizen input
Networking strategy	Two-way asymmetrical	Participatory and interactive channel
Customer service strategy	Two-way symmetrical	Customized messages and services

* Based on Mergal, 2012, 2013; Meijer & Thaens, 2013

It now seems appropriate to review the current social media strategies conducted in state agencies by analyzing their online contents, and reveal the strategic communication factors that affect the use of these new technologies as well as their implications for the future.

Social media use in public health and nonprofits

As mentioned in the previous section in this paper, more and more Internet users are looking online for health information, and their expectation of online engagement with government has moved from news feed to better online public services. In recent years, increasing numbers of public health organizations have incorporated social media into

their communication agenda. Local health agencies use Twitter to share information, engage with citizens, and promote actions, and its primary use is one-way communication focusing on health-related or organization-related information (Thackeray et.al, 2008; Neiger et al., 2013). Research conducted among state health department indicated that Twitter is the most commonly used social media application in public health (Thackeray et al., 2012; Harris, Snider & Mueller, 2013). Although most state health department have been using social media applications since 2008 and many have generated a considerable number of followers, the number of followers only represents a small portion of the state population (Harris & Snider, 2009), which implies that there is great potential for state health departments to target and engage with a wider and more diverse audiences online.

Nonprofit organizations are making effort to build their online presence and develop social networking relationships with their audiences and stakeholders (Waters et al., 2009). In a study conducted among the top 200 fundraising nonprofits in the United States, Waters and Jamal (2011) examined their use of Twitter and engagement level. They concluded that nonprofit organizations predominantly use Twitter to convey one-way messages and mostly use the public information model to disseminate information. Similar results have been found in a study of the 100 largest nonprofit organizations in the United States (Lovejoy & Saxton, 2013). The results indicated that 59% of Twitter content was informational in nature. Park, Rodgers, and Stemmler (2011) conducted a study of health organizations' Facebook use to examine their interactive features on social media. They found that generally nonprofit organizations are more active in using Facebook with more than double the number of posts compared with universities and government agencies. However, nonprofit organizations did not take

full advantage of social media channels as a branding and engaging technique. They relied too much on social media's informational function but overlooked its interactive and dialogic features, which are supposed to be the key elements of building online engagement.

Although considerable numbers of organizations – nonprofits and government agencies find it difficult to effectively engage with the audience, limited research has been focused on the underlying organizational factors influencing this. To improve the strategic social media use in public sector, it is important to understand the strengths, challenges, threats, and opportunities that those organizations are facing, and provide recommendations accordingly.

Methods

Content analysis

Data

The scope of social media in this study is specifically narrowed down to Twitter, Facebook, and YouTube because they are the three major social media tools used by MDH. In order to learn the communicative practices and patterns on these social media platforms, this study first used basic statistical information collected from MDH's Twitter, Facebook, and YouTube accounts to review MDH's online performance. Building upon Thackerary's et al. (2012) study of *Adoption and Use of Social Media among Public Health Departments*, this study analyzed social media presence, interactivity, and reach (see Table 2).

All the data were collected by Capture for NVivo, a screen capture software, to

obtain screenshots of each social media homepage and related contents on timelines (see Appendix 6). The data collected by this technique ranges from the date it was collected (May 1, 2015) back to the date of the first post on the user's timeline. However, due to the limits of the software and Twitter API, not all the data from Twitter were allowed to be collected. A part of Twitter data created before 2012 is missing in this study. 3,204 Twitter posts (75% of the total tweets), 2,447 Facebook posts, and 65 YouTube videos were therefore collected on May 1st, 2015. A second round of data collection of 100 Facebook posts was conducted on July 8th, 2015.

Coding

In order to understand the types of communication and their interactive features on social media platforms, the most recent 100 tweets and Facebook posts were collected and coded for the content analysis in order to provide insights of MDH's online communication patterns regarding engagement and interactivity. The coding was mainly based on the content of tweets instead of which Twitter function was being used. Each tweet was categorized into as many classes as appropriate. Classifications (Appendix 2 and Appendix 3) are primarily based on the previous studies on *Twitter Use by the U.S. Congress* (Golbeck, Grimes & Rogers, 2010), *A Case of Australian Government Use of Twitter* (Alam & Lucas, 2011), and the logic of Mergal's (2012) fourfold social media strategies. To provide a statistical review of MDH's social media performance, following the previous literature review, this paper mainly uses the number of followers and the re-tweeted times to conceptualize engagement.

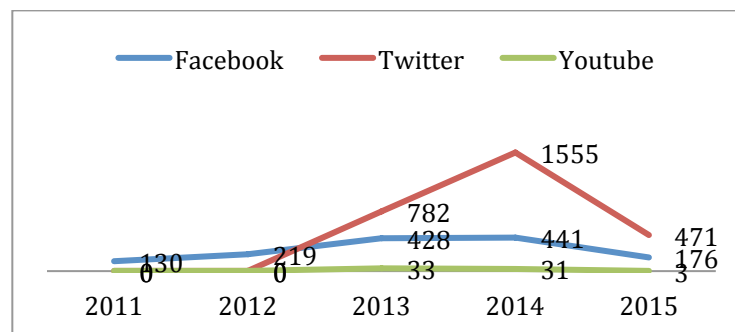
Interview

In addition to content analysis, this study analyzed interview data collected from October through November 2014 to support the organization's internal situation analysis. Interviews were conducted with chief communication staff in the agencies' central and divisional communication team, as well as IT staff who are responsible for information technology support. Key social media practitioners at MDH, including the communication director, social media staff in divisions (Newborn Screening Program, Infectious Disease Division, Children and Families Services), and one IT staff member, were carefully selected and interviewed. In order to provide practical recommendations for MDH's social media improvement, three interpretive interviews with local social media experts were also conducted. Interviewees introduced their work experience with social media and discussed challenges and concerns regarding the current social media use in their own organizations.

Results

Minnesota Department of Health (MDH)'s Use of Social Media

Figure 6. Twitter, Facebook, and YouTube posts created by MDH



* Data collected on May 1, 2015. Tweets before 2012 are missing data in this study due to technological limit

MDH started using Twitter in 2009, Facebook in 2011, and YouTube in 2013. All the social media sites have linkages to each other and all are listed on the MDH's website. Figure 6 shows the number of MDH's posts on Facebook, Twitter, and YouTube until May 1st, 2015. Twitter is the major social media platform in recent years, on which the number of tweets has been increasing rapidly since 2013; and the number of posts on Facebook and YouTube have maintained a steady growth.

Twitter

MDH launched Twitter in 2009. The number of total tweets has grown rapidly since 2013, with a 50% increase from the previous year. In addition, overall MDH tweets have been re-tweeted (shared) by other users 2,969 times, and in 2014 the number of times being re-tweeted increased to 1,741, nearly three times more than in 2013 (634). The significant growth in the number re-tweets is a good indicator of engagement and interactions because it means that messages are being disseminated more broadly. At the same time, it shows that increasing numbers of people are paying attention to the government's online activities and participating in open conversations through sharing information on their own timelines.

As one of the early adopters of social media in state governments, MDH has become increasingly active on Twitter in recent years. MDH has 7,696 followers and is following 889 people on Twitter. The following and follower ratio is 8.65, a fairly high ratio for a state government agency. Compared to the number of people MDH follows, the number of MDH's followers increased rapidly. From April 3 to May 3, 131 people started to follow MDH; while the number of people MDH follows stayed the same. Among MDH's top 20 popular followers whose number of followers accumulated to more than

11million, only one organization is followed back by MDH. The department only built reciprocal relationship with one user, a news organization.

Table 2. Metrics of coding MDH’s social media data

Metric	Definition	Twitter metric	Facebook metric	YouTube metric
<i>Presence</i>	Existence of particular social media feature	3,213 Tweets (collected); 4,643 (total)	1, 116 posts; 35 videos; 231 photos; 14 status; 1 event	65 47, 295 views 8 Comments, 93 likes, 4 dislikes
<i>Interactivity</i>	Audience members posting content, comments, or likes	Original created Tweets: 89.25% (2,770/ 3,212); Retweets: 13.75% (442/ 3,212)	519 comments 17, 168 likes 29MDH comments 10 replies	47,295 views Comments, likes, dislikes
<i>Reach</i>	Number of people the MDH connected with	Follower: 7,859 Following: 898	3,494 page likes	Subscription: 111

* Data collected on May 1st, 2015

Facebook

Facebook is mainly used as MDH’s blog for news release and health-related information sharing. With more than four years of history, MDH’s Facebook site has established a relatively strong and stable online presence. 3,324 people liked the site, which is more than most other state agencies. However, it only accounts for 0.06% (3,324/ 5,457,173)¹ of the state population. Considering the department’s long history on Facebook and the large and diverse population it serves, more Facebook reach could have been achieved. Among all the information posted on MDH’s timeline, 57% (1,394/ 2,446)

¹ The United States Census Bureau counted Minnesota’s population at 5,457,173 in the 2014 Census: <http://quickfacts.census.gov/qfd/states/27000.html>

was created by the department, which means that department is the major content contributor of its Facebook page.

As to citizen engagement on Facebook, MDH received 11,909 likes in total, which means that every post receives about 8 likes from viewers on average. 91.1% (10,860/11,909) of the likes were given to MDH's original posts, while only 10% likes were given to other content contributors, which shows that MDH has strong ability to create quality content on Facebook. Images and links work better in generating user engagement than text-only posts. The newborn screening program and the Division of Infectious Disease Epidemiology, Prevention and Control are major content contributors within MDH, which makes women and children major themes that appeared in photos.

YouTube

Comparing to Facebook and Twitter, MDH's YouTube site contains fewer posts but covers a wider range of audiences. Sixty-five posts generated 47,295 views in total. On average, each video has been viewed about 727 times (SD=1,393). The huge standard deviation implies a huge difference in the number of views among those videos. Popular topics such as smoking, mental health, alcohol use, HPV vaccine, and flu shots are closely related to people's daily life. Most of the popular videos were designed for public health education and campaigns. Storytelling strategies, music, and instructions are frequently applied in those campaign videos. However, as for interactions with audiences, very few videos received comments from viewers. Even the most popular video that has been viewed more than 8,700 times only received one reply. Different from Facebook and Twitter, MDH's YouTube channel is a video-sharing platform where most of the videos are for educational purposes. Public health information is disseminated in a

unidirectional way and the poster does not initiate discussion in the video. In addition, some topics are related to severe health outcomes, such as cancer or death, which are associated with negative moods, so people would feel reluctant to comment or share the video on their own timelines. Among MDH's divisions and programs, IDEPC (Infectious Disease Epidemiology, Prevention and Control) and Newborn Screening are the major content contributors on YouTube.

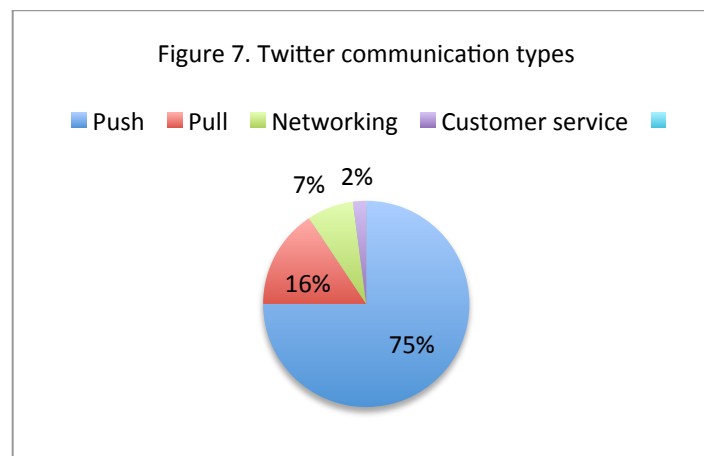
Types of communication patterns

To develop a deeper understanding of MDH's communication patterns and interactive features on social networking sites, this study then conducted a comprehensive content analysis of the latest 100 posts from MDH's Twitter and Facebook sites. The two platforms show very different communication features. Twitter is more informative and Facebook is more interactive.

On Twitter, the majority of tweets are "*push*" messages, accounting for 75% of the total collected tweets. These short, direct messages mainly contain information about MDH's news releases, health reports, and quick facts. MDH posts news and updates closely related to its work. Approximately 70% of those posts contained URLs, and most of them were linked to news releases, reports, or the department's web page with greater details. The posts without links are quick facts or notifications.

Examples:

- Today's public health news clips: <https://t.co/nojwB0jsQO>
- News release: New MDH report shows HIV/AIDS cases increased slightly in 2014 <https://t.co/GzecIQoGGd>
- Know the facts: Half of all STDs are in people under 25 years old.



This is followed by “*pull*” information regarding MDH’s healthcare programs and upcoming health-related events (16%). This category describes a program, or an event organized by MDH, encourages citizens to learn more about the program or join the activities offline. Or it contains external links, providing opportunities for people to access information or connect with other organizations outside of MDH. Tweets classified in this category are relevant to the agency’s mission but may not directly relate to its ongoing activities.

Examples:

- We work with many local partners to provide discount radon test kits! Find your local MN radon contact: <http://t.co/udOwgRIUjI> #NPHW
- Attend @PedalMN #Bike Conference & learn how MN is building bike-friendly state May 4-5 MPLS <https://t.co/zyqw1scRNQ>
- Join us for “We Are Empowered Tea” on Apr 10 to raise awareness about the impact of #HIV/AIDS on women. #NWGHAAD <http://t.co/rsiO7gAXuB>

Posts calling for *networking* comprises of 7% of the total tweets. The networking category shows tweets encouraging audiences’ participatory actions. Those posts include

asking target audiences (e.g., new parents) to be involved with the agency in an online discussion. Videos, stories, and Q&A help MDH create an open and interactive conversation with its audiences.

Examples:

- "Newborn screening saved my son's life." Ryan's mom tells his #newbornscreening story: <http://t.co/aHgNViWP50> <http://t.co/Jo6QviLnuN>
- Why is #hearing so important for children? Tell us what YOU think! #newbornscreening #EHDI <http://t.co/aOdFpA9yHC>

Only 2% of the tweets are customized messages using Twitter's @-reply or mention function for direct conversation with a particular user. In this way, MDH publicizes announcements, gives specific feedback to others, or write short thank-you notes for support.

Example: Thank you to @allieshah @DrAngelaMattke and @robertjmd for joining us! #fluchat

MDH uses Facebook as a platform to personalize the organization, which shows strong interactive features. Among the latest 100 posts, 43% use push strategy to post health-related knowledge mostly for public education purpose. Even sending a one-way message, MDH uses info-graphics, photos, and external links to make the information more readable and engaging to audiences.

Posts with photos and images received 70% of the likes. The most shared, commented, and liked posts in April 2015 all show a good mix-up of different types of photos, info-graphs and texts. For example, the most popular post about obesity rates

among upper Midwest states, showing a line chart with different colors and followed by statistic discretions received 102 likes and was shared 61 times (Figure 9).

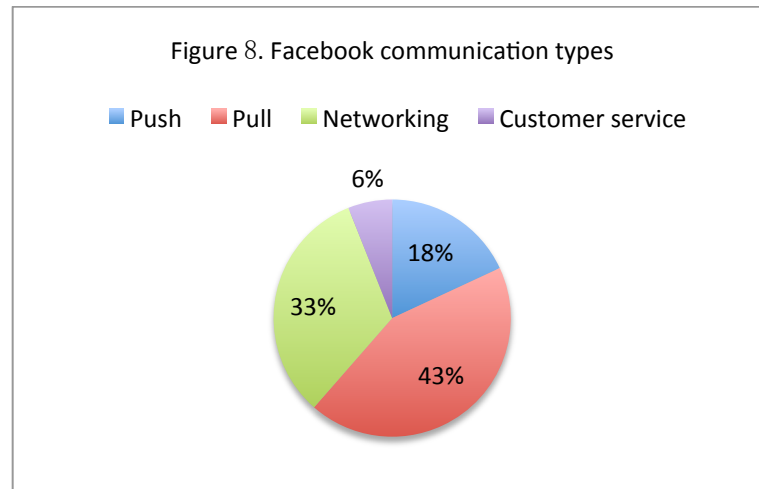


Figure 9.



Figure 10.



As to engagement, personal stories are frequently posted on MDH's Facebook. A great example would be Sophia's mom telling her experience with Newborn Screening, which has received 40 likes. It helps MDH get closer to audiences who have concerns or misunderstandings about the Newborn Screening program. However, though the department has been making efforts to call for participation, it seldom posts follow-up information after the original post, which results in potential two-way communication

operating as one-way communication focusing only on information delivery without showing how agencies adjust and operate in order to continue the conversation, or maintain a certain relationship with their audience.

Disparity in health communication is a historical problem in Minnesota. According to the recent Statewide Health Assessment (2012), the persistent inequalities in Minnesota are demonstrated starkly. Populations of color and American Indians in Minnesota experience higher rate of many chronic and infectious diseases and premature death. MDH has acknowledged the need to construct tailored messages for minority groups. For example, MDH created an introductory video about autism in Somali and posted it on Facebook. However, more efforts need to be done in the future. Health disparities are a problem that has not be fully addressed in MDH's social media implementation. Although the department has established a webpage for translated public health materials in 18 languages², very few of them were reconstructed and redistributed on the department's social media platforms. Only three videos were created specifically targeting on the Somali community.

MDH's Strategic Communication Factors

Reviewing MDH's social media contents provides a general understanding of the department's current online performances. Further understanding of the reasons behind such online performances requires an in-depth situational analysis by scanning the organization's internal and external environment. Therefore, this section applies the SFAS Matrix to identify key strategic factors that affect MDH's current social media

² <http://www.health.state.mn.us/divs/translation/>

strategies. In an SFAS (Strategic Factors Analysis Summary) matrix, strengths, weaknesses, opportunities and threats are summarized into about six factors based on the internal and external analyses (Wheelen & Hunger, 2013, pp.176). The importance of these factors is evaluated with grades from 0 (no importance) to 1 (of great importance) depending on their influence on the strategic positioning of the organization. The total weights must sum to 1.00. Three semi-structured interviews with four MDH staff were conducted. Rating is based on the interviewees' response to the organization's performance in that category, from 5 (outstanding) to 0 (poor). The researcher also multiplies each factor's weight times the rating to obtain each factor's weighted score in Column 4, following by the rationale (Table 3).

Strength: The department has clear communication objectives: promotion, education, and engagement, which are well aligned with the overall organizational mission of protecting all Minnesotans. The existing communication plan has emphasized social media as an important component of the organization's PR strategy. MDH's communication team set a goal of engaging with citizens, running ahead of most state agencies. Communication staff in both central office and divisions expressed positive attitudes toward citizen engagement. As one interviewee said, *"More recently, the goal has been more on engagement, that's probably always the goal of social media, trying to get engagement."*

Weakness: Advanced use of social media requires adequate monetary and personnel investment. Therefore organizations interested in building a higher level of engagement on social media need to be aware of the corresponding inputs. The lack of designated staff that can commit to operating social media sites is a big challenge faced by MDH.

Despite MDH has a strong desire to leverage the power of social media, limited funding and personnel does not allow it to do so. Although there are increasingly number of low-cost or free resources available to help practitioners with limited budgets to manage social media operations, government agencies have to be cautious about giving authority to a third party company for social media management because of data security and privacy concerns.

Another weakness is the slow and complicated legal processing system. State departments have a separate *licensing* agreement that is different from individual use. The application has to go through the IT department (MN. IT) and be reviewed by lawyers before sending on a third party social networking company. Waiting for policy approval can often last several months or even half a year, which is way too long for an agency to keep up with trends in the constantly changing social media environment. As one interview said, *“We wanted a Facebook account two years even before we actually got it because we cannot apply by ourselves. We have to go through the overall application as we use it as MDH employees.”*

Opportunity: As a large state department, MDH has nearly 30 programs; however, not all of them are involved in the social media strategy. Newborn Screening and Infectious Disease Epidemiology, Prevention and Control provide about 40% of the social media contents across Facebook, Twitter and YouTube, which leaves a lot of space for other divisions’ participation. Although the divisional staff indicated that *“the department overall will be benefit from having broader audiences but to divisions a narrowed scope of target audiences, and specific communication objectives will more beneficial,”* and the chief communication staff at central office admitted that divisions

are more active and innovative in leveraging the power of social media. The other divisions' content contribution will largely diversify and balance the MDH's online content and help connect with more diverse populations online.

Threat: Government agencies' biggest risk related to social media engagement is the uncontrolled reaction from citizens. MDH also has concerns about negative comments regarding controversial and sensitive health topics. Risks lie in open conversations with citizens because some of the issues that MDH deals with are controversial. For example the Newborn Screening program. Newborn Screening does genetic tests on newborn babies, which raises controversies about the data that have been collected and stored and changes in the law. Although the department is positive in engaging with citizens, especially new parents, it still is concerned about having direct conversations regarding sensitive and controversial issues. Although the department is not afraid of negative feedback, it tries to avoid discussing those topics directly with citizens on social networking sites.

Insights from local social media professionals

To form a more comprehensive understanding of social media use in health organizations, this section summarized the main insights from interviews with local social media professionals who had work experience with health-related organizations in both public and private sectors. These findings will be used to provide more solid and practical recommendations for MDH's social media implementation.

- Budget constraint is a common challenge faced by nonprofit organizations, as said by one interviewee, "this will always be an issue for nonprofits where money is tight."

Although there is no clear number of budgets, staffing shortage is an obvious problem. PR and communication staffs are usually responsible for social media work, but they only work on it as a part-time job. Limitations in budget and staffing make it important for social media practitioners in the public sector to stretch resources they have and fully leverage the power of existing “organic” functions.

- Target audience is still a missing puzzle in nonprofits’ social media implementation. Both large and small size organizations found it is difficult to define target audiences. The organization’s overall social media account that deals with large and diverse audiences would post content with common interests to capture as many audiences as they can. Audiences’ particular interests will be taken care by departments or divisions with their separate accounts.
- The implementation of social media is less data driven and lack of measurement in nonprofit organizations. Limited social media analytics has been conducted to make sure their social media channels and target audiences are in sync, or to evaluate whether the invested digital resources are used effectively. Paid service and analytical tools are seldom used to measure the success of social media impact.
- Comparing to companies, nonprofits have lower awareness of the benefits it could bring to the organizations, but nonprofits have shown innovations in creating interactive contents. Storytelling is frequently used as an engaging strategy to resonate readers’ own experience, “We tried to use storytelling as much as possible. We found that posts that include a person's name, age, location and something that makes them unique always got higher engagement than posts without that information.”
- In addition, nonprofits are also actively collaborating with external partners for fundraising and public campaigns by using social media. Unlike government agencies that have to keep neutral political attitudes and cannot show commercial inclination,

nonprofits have more flexibility to choose partners such as celebrities and companies to work with.

Table 3. SFAS metric of MDH's social media use

Type	Strategic Factor	Weight	Rating	Weighted score	Comment
Strength	Communication objective	0.2	4	0.8	<ul style="list-style-type: none"> The existing communication strategy is well aligned with the organization's overall mission and goal Communication staff have an agreement on putting engagement at a prior place
Weakness	Resources allocation	0.1	3	0.3	<ul style="list-style-type: none"> No full-time employee working specifically on social media
Weakness	Legal process	0.1	3	0.3	<ul style="list-style-type: none"> Complicated application and approval process decelerate the development of MDH's social media usage
Opportunity	Organizational structure	0.3	3	0.6	<ul style="list-style-type: none"> Allow divisions to have more flexibility to build their own social media presences.
Opportunity	Large and diverse audience	0.1	3	0.3	<ul style="list-style-type: none"> Connect with popular users and influential opinion leaders to reach more and diverse audiences
Threat	Uncontrolled reactions	0.2	4	0.8	<ul style="list-style-type: none"> Loss control of citizens' feedback
Total score		1		3.2	

Discussion

This section addresses questions and ideas upon the study with MDH and hopes to provide implications to help other public health organizations develop strategic social media plan.

The growth of social media adoption and the increasing numbers of followers, posts, and retweets indicate that MDH has been consistently making efforts to improve their social media presence and reach. Interviews with key social media practitioners at MDH also showed that the department has strong intentions to facilitate greater civic engagement on social networking sites. Although MDH set a goal of achieving higher level of engagement on social media, this study found that MDH has not committed a comprehensive networking strategy with all of its audiences on multiple digital platforms. From an organization's perspective, whether or not to conduct a networking or two-way communication strategy depends on two factors: the organization's social media capacity and the features of social media site.

Organizational capacity:

The content analysis found that social media practitioners at MDH mainly use Push and Pull strategies on Twitter instead of building reciprocal relationships with its audiences. Two-way communication, such as dialogues and interactivities, are only modestly used through Twitter and Facebook. These findings are not surprising as what have been suggested in previous literatures. One-way communication are mostly associated with government public relationships because they are easier to manage and less risky than two-way communications. Resources allocation puts a huge barrier to the development of social media at MDH. It is not realistic for a state agency to activate

advanced social media functions, or build closer networks with audiences by following back every follower because currently the department does not have a full-time employee who is designated to maintaining multiple social media sites. As a government agency, MDH also has to hold a neutral standpoint to different political opinions so it is not appropriate for them to directly connect with citizens who may have strong political preferences.

The features of social media platform:

The results indicate uneven implementations and different interactive features across MDH's social media sites. Among the three sites, Twitter reaches the largest number of people, and is most frequently updated, but it does not generate much direct two – way communication. A reasonable explanation is that Twitter has its limited content space for 140 characters, which makes it an effective broadcasting platform for short messages and real – time conversations. However, with such a short lifespan, one tweet can hardly generate meaningful engagement. Therefore, Facebook is a better place for two-way message delivery because it has more space to contain detailed and engaging information. It also has more interactive features, such as *share, like, reply, and forward*, allowing users not only to engage with the poster but also with other audiences as well.

As discussed above, it seems like the current situation does not allow MDH to fully commit a two-way communication, or networking plan on social media. Does that mean the department should pursue a lower level of engagement? To answer this question, it is important to revisit the department's mission and to see if it is well aligned with the communication objective. MDH's mission is to protect, maintain, and improve the health of all Minnesotan. Organizations with more public-oriented services tend to have a

stronger requirement of interactivity and engagement with audiences. Public health organizations have inherent obligation of educating the general public with critical health information; therefore, building connections with wide and diverse audiences is necessary to MDH. Keeping this objective in mind, although there is a long way to go, the department is on the right track of building mutual beneficial relationships with citizens. In view of the limitations in MDH's organizational capacity, the question would be how could the department do more with less? How to maximize the potential of audience engagement with limited resource?

Effective engagement

Engagement is a favorable idea in social media marketing because it allows companies to have direct conversations with their customers, build brand recognition, and ultimately boost sales. However, engagement for public health organizations on social media channels is not driven by profit. Rather, people are engaged based on similar interests around a given health issue. Reviewing the most liked, retweeted, and viewed posts, this study found one thing in common is that they are all highly relevant to people's daily lives and experiences but less focused on the MDH's brand. In other words, people who look for health-related information care more about its topic, reliability and relevance. Internet provides rich information resources with similar credibility, so people would care less about where they get the information instead of what they learned. For a public health organization the main goal of engagement should not be building brand recognition, but to make sure the right people are connected with the right information. Effective engagement is, therefore, not based on the favor of the organization, but on two key elements: target audience and content.

Decentralized social media structure

Figure 11. A Centralized Social Media Structure

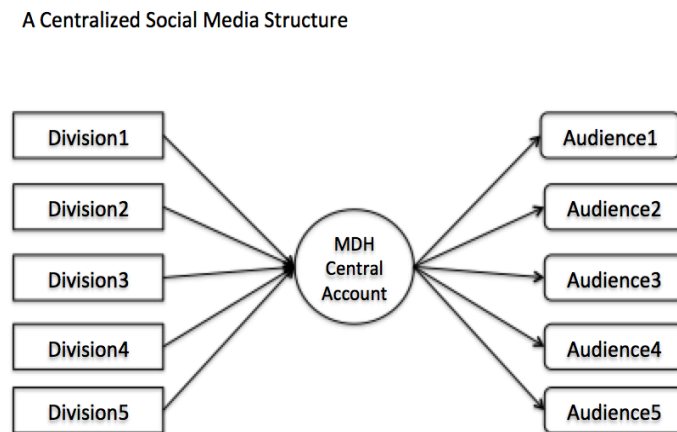
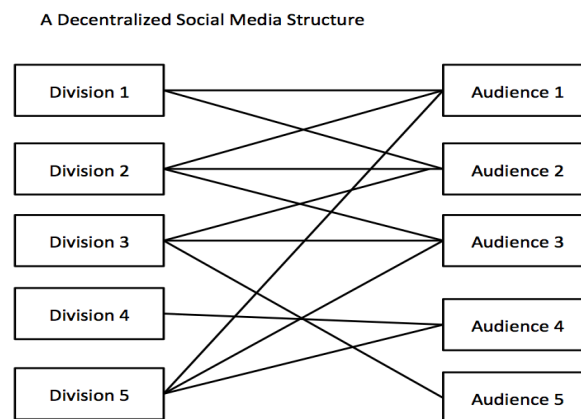


Figure 12. A Decentralized Social Media Structure



Traditionally a large number of aggregated audiences is viewed as the indicator of engagement, but as MDH is pursuing a higher degree of engagement, it is important for the department to pay more attention to audiences in different segments. Currently, MDH is conducting a centralized social media structure (Figure11).

Under the centralized structure, the MDH central communication office plays a gatekeeper function, getting information from divisions, censoring the information, then

delivering the information to audiences in all segments via the department's official social media account. The good thing about a centralized structure is that all the messages are reviewed before sending out, so it reduces the likelihood of inappropriate messages. This structure is also believed to have advantages in keeping messages consistent across department but only if all the divisions contribute equally. To make this structure work effectively, the central office has to meet three criteria: be well known, robust, and have strong systematical management.

The central account has to be easily recognized by audiences in different segments so that they will trust the information source. It also has to be robust, which means the account should always be responsive and available to bridge the two sides without a break. It is easier to manage the organization's internal communication but it is hard to expect questions and requirements from the audience side. In view of the diversity in both information suppliers and receivers, the central office has to build a strong social media capacity that allows for information exchange and transfer in a timely manner.

Given the diverse audiences MDH serves and the department's organizational structure, it is challenging to depend only on a single organizational account to deal with the entire target demographic --"all Minnesotans". So far the central office is able to manage regular use of Twitter and Facebook depending on contents contributed by several divisions, but moving toward a higher engagement stage requiring more networking or customized service, the central communication team is less flexible to connect with audience on the individual level. Some divisions have shown strong abilities in content creation and strong intentions of interaction. Based on MDH's communication goal, I would suggest a decentralized structure could be a more effective strategy

(Figure 12).

Under a decentralized structure, divisions are able to connect with their target audiences without going through the central office. Setting up a divisional account is able to narrow target audiences based on the division's particular public health issues, and provide customized communication experience to its audiences. Audience will not have to read all the posts carefully to find out the relevant information to them, instead, they will experience more focused and well organized content showing up on their screens.

Implications for public health organizations

1. **Design a Mission Focused and Realistic Plan.** It is necessary for an organization to examine, plan, and improve its social media implementation. An organization should first make sure its goal of social media use is consistent with the organization's mission and capacity. Given that limited budget and personnel is a common challenge faced by public health organizations, organizations should be realistic about what can be achieved and well plan the resources accordingly.
2. **Choose an Appropriate Platform.** With multiple social media platforms offering various tools for citizen engagement, public health agencies need to figure out the best and most effective social media platforms to meet their communication objectives. It is reasonable to focus on only one platform as long as it serves the communication objectives in presence, reach, and interactivity. It is also important to discover different features of each social media site and use them to support different communication tasks.
3. **Know Your Audience.** Effective health communication starts with understanding who you talk with, what do they want, and how they would interpret your message. Therefore knowing your audience is prioritized in strategic communication. A large number of aggregated audiences show that the organization is popular online but also brings challenge

to audience management. When dealing with large and diverse audiences, organizations need to divide them into segments and connect each segment with tailored information.

Organizations may consider connecting with key stakeholders, influencers or thought-leaders in order to expand social media impact and facilitate audience engagement.

4. **Explore External Collaboration.** It is also important for organizations to form alliances with outside partners such as nonprofit organizations, media, and community leaders. Partners outside of the organization may have better access to a different group of audiences that have not been reached yet by the organization. A strategic collaboration finds the common interests and uses that to disclose health-related messages to high proportions of a population. For example, using push and pull strategies to promote partner organizations' events online.
5. **Enhance Internal Collaboration.** Utilizing social media requires a strong internal collaboration. If an organization is using a single account with aggregated information, it has to keep the contents interesting and balanced to different audiences. Having more inputs from divisions and programs will help create more diversified contents in order to meet different reading interests.
6. **Increase Investment in Personnel.** To reach the highest potential of social media, an organization may consider setting up full time position for designated social media staff. As agencies become more comfortable with using Twitter, Facebook, or other social media platforms, the real impact of social media moves beyond regular use of media tools and allows agencies to analyze the data and measure outcomes of online engagement. However, this requires practitioners to have higher proficiency in not only technical skills, but also sophisticated insight into strategic social media management and public campaigns.

A Recommended Strategic Social Media Plan for MDH

- **Communication Objectives:** The mission of the Minnesota Department of Health is to ensure the health for every Minnesotan. The use of social media aims to facilitate the department's integrated communication practice and should be consistent with the organization's mission and goals. Different communication objectives require a combination of push, pull, networking and customer service strategies, for example:

Table 4. MDH push, pull, networking, and customer services strategies

Objectives	Approach	Measurement of impacts
Increase transparency	Push Strategy: Post regularly and consistently on main channels Keep a steady post frequency Post content during the audiences' most active hours online.	# of daily/ weekly/ monthly/ posts # of posting frequency # of Followers' SM activities during the day
Public health information promotion	Push and Pull Strategies: Create dynamic content containing images, photos, or videos Insert links with greater information or drive the traffics to a certain destination, ex., the MDH's webpage Provide rich information about upcoming health-related events	# of replies, comments, retweets, shares, etc. # of clicks on links User traffics on website # of online registration # of offline attendance
Educate public health knowledge	Push, Pull, and Networking Strategies Invite public health educators to hold web panel Hold real-time conversations about health-related questions with audiences by using hashtags	# of replies, comments, retweets, shares, etc. #of live time posts #of hashtags #of online participants
Facilitate engagement	Networking and Customer Service Strategies Maximize the usage of existing interactive functions on social media sites, such as sharing, retweet, forward, @, etc. Initiate a conversation and join the conversation with audiences	# of replies, comments, retweets, shares, etc. # of tagged users

- **Target Audience:** To reach communication objectives, the department's primary responsibilities are to define and connect with its target audiences. MDH has a large size of

local-based audiences and it is easier to manage the relationships with them through audience segmentations. MDH's audience segmentation could be categorized in different ways, for examples:

Table 5. MDH audience segmentation

Audience Segmentation		
Based on most concerned health issues	Based on partnership	Location and Language
<ul style="list-style-type: none"> • Chronic disease management and prevention • Infectious disease • Health emergency • Mental health • Birth • Obesity 	<ul style="list-style-type: none"> • Government agencies • Political officers • Public health institutes • Education institutes • Hospitals • Public health advocates • Nonprofit organizations 	<ul style="list-style-type: none"> • City and county • English • Other language

- Data Driven: Audience research needs to be data driven. Given the resource constraint, it may difficult for MDH to conduct a comprehensive statewide demographic research about social media use. Here are two alternatives:
 - 1) Listen to audiences' information demand by using Google Analytics to find what health information is constantly searched; and using Hootsuite to monitor followers' post trends to identify the most frequently discussed health topics and potential public health problems. Create hashtags or hold public health Q&A on a regular basis to allow the health needs of the followers to be heard.
 - 2) Conduct focus groups, online panels, or online survey with questions about the audiences' social media preference, user habits, health information needs, expectations and concerns regarding their communication with MDH. Start with one audience segment or on a small scale that is manageable and repeat regularly.

These qualitative data will be constantly useful for MDH's continuous social media improvement and work as references when exploring new digital media platforms.

- **Minorities and Marginalized Audiences:** The potential to use social media to reach vulnerable and marginalized groups is certain but minority groups may be hard to reach because of their technology access and local context. MDH may need to work with local health and human service agencies, healthcare providers, and community thought leaders to ensure the needs of ethnic groups are met. Addressing the most health concerns arising in those groups, such as aging and infectious disease is particularly important to create tailored messages.
- **Key Influencers:** Key influencers are those popular users who have a large number of followers or fans online. They can be celebrities, political figures, professionals or local opinion leaders. Connecting with them is a short cut to a wider audience base. To identify key influencers, MDH can review the local influencers offline and search for their online presences, or use a number of free Twitter analytical tools that can extract its followers' data to detect potential key influencers.
- **Team-building and Internal Collaboration**
 - 1) **Provide a full-time position:** Although social media seems free, it actually requires a major investment of time to manage and operate multiple online platforms. Not having the time to adequately maintain social media is a major barrier of MDH's social media development. Interns can only assist administrative work such as create news release with given materials or post content, but do not have the authority to plan, organize and censor MDH's overall social media activities. As moving to a matured use of social media and in order to better commit the organization's mission and goal, it is necessary to set up a

full-time position for designated social media staff.

- 2) Make an editorial calendar to balance the content contributed across agency.
Make sure each division will have relatively equal exposure on social media.
Share successful examples or hold social media seminar to help divisions and programs to learn from each other. It also provides opportunities for divisions and programs to find similar interests and promote internal collaboration.
- 3) Allow divisions to set separate accounts: Divisions and programs within MDH have unbalanced content contribution and different maturity in using social media.
For those who have demonstrated social media capacity, such as the Newborn Screening program, MDH may consider to give them more flexibility and power to manage its own account.

- Content Strategies

- 1) Reuse existing content: MDH has already created a huge amount of public health materials restored in its website. Review the existing content on MDH's website and reconstruct them to be better presented in a Facebook or Twitter format; or to create tailored messages based on the existing materials to meet the diverse expectations from different audience segments.
- 2) Create content interactions with audiences. Choose appropriate topics that are closely relevant to people's daily experience. Use storytelling, such as personal experience, inspiring stories, to build emotional, individual connections with audiences, translating personal health to public health. Use *questions*, *tips*, *discussion*, or even *debate*, to start conversations that invoke thoughts and comments from audiences.
- 3) Create customer persona and customer journey map for intended audiences. The customer persona for MDH is a semi-fictional representation of the agency's

target audience based on audience demographics, socioeconomic status, health needs, and so on. Persona adds human insights to statistic data and will help MDH guide decisions about content creation and dissemination to large and diverse audiences. A customer journey map imitates an audience's experience with MDH social media from not connected through the process of receiving information and into a long-term relationship. MDH may consider creating audience journey maps because they provide a sense of audience's intentions and expectations, which are important references for tailored content creation.

- 4) Mobile communication: Smart phone penetration brings a new range of possibilities for public health promotion. As the demographic is getting more and more comfortable with mobile news feeding, MDH may consider generating content that are better fit the mobile channel by using more visuals, infographics, and videos.

Conclusion

This study examined the use of Facebook, Twitter, and YouTube in the Minnesota Department of Health. In order to develop a comprehensive understanding of communicative practices, this paper first collected empirical statistics across different social media platforms, and then used content analysis to categorize four types of communications carried out on Twitter. The empirical analysis reveals that MDH mainly uses Twitter to disseminate news and updates about the agency's work and events; uses Facebook to personalize MDH's brand; and uses YouTube to support public health campaign work. In addition to content analysis, this study scans the department's internal and external environment combined with interviews with MDH employees to inform an

SAFS matrix and provide a situational analysis regarding its current social media strategy.

Using digital communications to streamline complex communication and increase engagement enables government agencies to deliver greater value to the public. MDH has realized the importance of using social media tools to interact with broader ranges of citizens, but the department still has challenges in reaching target audiences. The department would be able to build stronger engagement with target audiences if it includes joint efforts from more MDH's divisions as content contributors, and tailors messages for specific audiences of different divisions. It's also important to note that social media only cover a part of citizens because of the digital divide in socioeconomic status and technology literacy. Not everyone is on social media so public health agencies shouldn't rely only on digital technologies for all kinds of communication. Therefore, the best practice of social media for public health communication and civic engagement should be incorporated with other traditional media channels and offline activities.

This study also has limitations that need to be acknowledged. Only one coder analyzed the Twitter and Facebook data, which may bias the results. This study investigated social media use only in one public health agency, resulting in a limited sample. Given that Twitter, Facebook, and YouTube have been widely adopted by most state government in the U.S., it would be helpful to compare the social media implementation across other state public health agencies to understand whether the current findings were similar in different agencies, and at different administrative levels.

To understand why public health organizations use social media in a particular way, future studies should conduct survey and interviews with more social media

practitioners in government agencies and nonprofit organizations in order to form a comprehensive understanding of their reasons, expectations, and challenges in social media implementation. Further, this study focuses on the content posted by MDH. To evaluate the outcome and effectiveness of those posts on citizen engagement, future work must be done from the audience's perspective to understand what factors contribute to their intentions to connect with government public health agencies, and their expectations for engagement with government through social media platforms.

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Appendix 1. Social Media Data Collection Sheet

Metrics of coding MDH's social media data				
Metric	Definition	Twitter metric	Facebook metric	YouTube metric
Presence	Existence of particular social media feature	Number of tweets	Number of posts, videos, views, events, discussions, notes, & videos	Number of videos
Interactivity	Audience members posting content, comments, or likes	Tweets, retweets	Comments, likes, dislikes, posts, replies to posts, comments	Comments, likes, dislikes
Reach	Number of people the SHD connected with through the social media application	Number of followers	Number of page likes	Number of subscribers

Appendix 2. Content Analysis – Facebook coding sheet

Communication type	SM strategy	Logic	Code
One-way	Push	Use short, direct language; just the facts. This can include news release, reports, quick notes, announcements, current events, etc.	F1
	Pull	Describes a program, or an event organized by MDH, providing opportunities for people to join the activities offline; Provide health information knowledge that contains external links, images, or videos to explain the health issue	F2
Two-way asymmetric	Networking	Initiate conversations or advocate feedback that is related to the organization's work. Those posts describe official or nonofficial government activities, using video, images, and storytelling techniques to encourage a conversation with audiences	F3
Two-way symmetric	Customer service	Demonstrate a desire to provide a long - term, mutually - beneficial relationships with the public. Those posts are directed at a specific person other than government agencies, with @user or contain @user in the text of the message, initiating customized communication individual citizen or organization.	F4

Appendix 3. Content analysis – Twitter coding sheet

Category	SM strategy	Logic	Code
One-way	Push	Use short, direct language; just the facts. This can include news release, reports, quick notes, announcements, current events, etc.	T1
	Pull	Describes a program, or an event organized by MDH, providing opportunities for people to join the activities offline. or contain external links, providing opportunities for people to get information or connect with other organizations outside of MDH.	T2
Two-way asymmetric	Networking	Initiate conversations or advocate feedback that is related to the organization's work. Those posts describe official or nonofficial government activities, using video, images, and most concerned health issues to encourage an online discussion.	T3
Two-way symmetric	Customer service	Demonstrate a desire to provide a long - term, mutually - beneficial relationships with the public. Those posts are directed at a specific person other than government agencies, either with RT, @user or contain @user in the text of the message, initiating customized communication individual citizen or organization.	T4

Appendix 4. Interview Questions

INTERVIEWS WITH MDH STAFF

First I would like to know more about your job, could you tell me a little more about what you are doing now at the department?

⇒ Job title

⇒ How long have you been working in this area?

⇒ describe your day?

General questions about social media adoption

1. What kinds of social media tools your department is using?

2. Which one is more / less frequently used?

⇒ Why Twitter?

⇒ Why not Facebook?

3. What social media tool do you prefer to use for your department, and why?

4. Based on your experience, who are the people likely to make friends with your department on social media? Who are the people your agency likely to make friends with?

5. Who are your target audience?

Social Media Strategy

1. Does your organization have a strategy regarding standards developed activities, and if so, could you talk about that?

2. My second goal for this interview is to understand the internal and external factors that determine the use of social media in your department.

Management

1. How many staff in the communication team? and how many work with social media?

2. Does the department only have one official social media account, or does divisions have their own social media platform?

⇒ centralized?

⇒ decentralized?

Main Objective/purpose

1. What are the most important reasons why your organization uses social media?

⇒ branding?

⇒ informational?

⇒ follow the popular trends?

⇒ public participation/ citizen engagement?

2. In what way does your department use social media? (Informational, interactive, etc.)

What is your organization's expectation of using social media?

How would you evaluate your department's current performance on social media? does it meet your goal?

Policy

1. Is there a regulation or policy that requires your department to have social media presence, or to use specific kind of social media tools?

2. Does your department have a social media strategy?

⇒ If so, what is the decision making process of designing a social media strategy? Can you describe it?

3. Who makes the final decision to approve the policy?

4. How long does it take to get the policy approved?

Technology

1. How do you feel about managing multiple social media platforms? Do you have any technological problem?

⇒ Unfamiliar with some social media functions?

⇒ Outsourcing news feed service?

2. Do you work with IT staff? ⇒ Could you talk about how you work collaboratively with IT staff on social media?
3. Do you use social media analytical tools to measure the effectiveness of your strategy?
4. As an IT staff, what is your work related to social media?
5. How do you work collaboratively with the communication team?
6. As a communication staff in your division, I wonder how do you feel about the current way of using social media? How do you coordinate with the central information office?
7. As a division with its own social media platform, can you talk about how social media changes the way of communication?

External Environment

1. How do you see the role of social media use in your department in relation to better transparency, public participation, and collaboration?

Transparency Participation Collaboration==> OPEN GOVERNMENT?
2. Do you feel any pressure from the public or other department that pushes your department to use social media in a particular way?
3. What do you see as particular challenges for developing social media capacity and how does the department respond to such challenge?

INTERVIEWS WITH SOCIAL MEDIA PROFESSIONALS

1. What is your work experience with social media at your organization?

⇒ How do you feel about working with such a large system?
2. What are the major challenges and concerns when operating and managing social media?

⇒ budget concerns?
3. What social media applications do you use? Do you use them in different ways?
4. How does your communication team look like? How do you cooperate with your

colleagues?

5. How do you deal with this large and diverse audience?
6. Do you know your target audience? How do you connect with them?
7. Do you see engagement as a goal of your social media use? Why or why not?
8. What did you do to make your social media posts on Twitter and Facebook more engaging to your audience?
9. From a content strategy's perspective, how do you improve social media use to be more engaging with wider and diverse audience? How do you know your audiences better?

Appendix 5. Interview Transcriptions

No. 1 Social media staff at MDH

Researcher: Thank you so much for coming! Just wanted to let you know again that this project is for my research project on social media use in the state government. I want to study the social media strategies used by the state agencies, and I want to learn the reasons why you guys use social media in particular ways.

Interviewee: OK, sure.

Researcher: I know that MDH is using different social media tools now. Can you talk about what kinds of social media are being used now? Could you describe a little bit?

Interviewee: Yeah, sure. We use Facebook, Twitter, and YouTube, if you consider that as a social media too. We also use GovDelivery, which integrate the social media.

Researcher: That is a kind of outsourcing monitoring tool, right?

Interviewee: Yeah, primary that's used for sending out emails and messages, that's kind of how we started using it. And more and more they have integrations, I mean they promote their products that you don't ... Facebook, Twitter, etc. And we use the integrations when we send out releases on twitter from their platform. Also we use yammer. Have you heard of that? It's just for state employees, only state employees use that.

Researcher: That's for internal communication?

Interviewee: Yeah. As far as I can know that any state agency employee can use that. Primary for kind of networking... so, that's it for now.

Researcher: As you mentioned that you use Twitter to post news releases, and I can see they also posted on the MDH's website. So among all those social media platforms, which one do you prefer to use or use more frequently?

Interviewee: I think we use Twitter more.

Researcher: Why?

Interviewee: I think it just because it's... ah we have a lot more followers on Twitter. I don't know if there is a reason. I guess just maybe because we have a lot of followers, it's shorter to just put something out there. We use Facebook. We use it on a fairly regular basis, but I don't think we put as many posts out there. Perhaps just because the engagement level is just that of improving

Researcher: I wonder why did you first think of using social media? You are the major social media employee, right?

Interviewee: Right now, yes. I think when we started; it was actually a previous employee that kind of pushing for it. It was mostly employees were using Facebook. You know, they were wondering why we don't work on Facebook. It was a collective thought. And other agencies and organizations are using Facebook, so lots of employees, they were just took off... I think Facebook was a big promoter that gets many people introduced to social media. Yeah, then we just decided to follow and try it.

Researcher: So as more and more people and organizations were using social media, you guys follow the trend and popularity.

Interviewee: Yeah, they thought it could be another way, an easier way to get out there and get exposure, yes.

Researcher: How about the "Open Government" Act? You know, more transparency, participation and collaboration. Was that a reason contributing to the social media use?

Interviewee: Ah... (Seems a little confused)

Researcher: Okay so the last time when we talked about social media, you asked me what else social media platforms should MDH use because you guys want to be more popular online. And according to my findings, comparing to other agencies, MDH uses social media more actively, so I wonder what are the reasons or objectives?

Interviewee: I think initially, it was probably just started using another tool that was out there. More recently, the goal has been more engagement, that's probably always the goal of social media, trying to get engagement. Because the posts are out there, if nobody notices it, you don't know how effective it is. And, our goal is to continue to post stuffs out there and also continually improve and watch what does get the engagement, maybe try to look at those posts and help us create other posts additionally.

Researcher: Does the department want to interact with the citizens?

Interviewee: Yes, of course we do, that's part of our goal. Our goal across the board should be availability for citizens whether they want to ask questions or find out information. Yeah, I think no matter what forms we use, that's the goal, accessible to public.

Me: The department is more focused on interactions and engagement. Both the online observations and our conversation show that you guys want to have interactions with citizens. I can see that MHD is making efforts to use Facebook and Twitter more interactively, not just posting news release or using them as information boards. When you try to have a conversation with citizens, have you thought of some potential risks?

There always a certain amount of risks in the public forums because basically everybody can comment, and they do. We get some of thoughts, but at least there is an engagement, people are aware of something. Even if there is negative comments out there, or there is something negative, we at least have somebody takes a notice of our department. And they may not have been really familiar with us before.

Researcher: Would that hold you back?

Interviewee: It hasn't held us back yet. I think we've had it years ago when we started to use social media. That was a concern. In most cases it's been proved that those concerns were probably not invalid. Really the two of our biggest contributors, the immunization and newborn screening can sometimes to some people be controversial.

The newborn screening... That's a program when new baby are born, they do a genetic test. They do blood test for genetic disorders. One of the reasons that has been controversial was because of the data they have been collected and stores, and in fact there have been some law changes, we have to, we just recently announced that we destroyed samples that were collected during a certain period of time. The law passed told us that you have the initiate data and you will need to destroy it.

Researcher: So does the department use social media to clarify some misunderstandings?

Interviewee: Well we didn't use that. However, the Newborn Screening is our biggest contributor, they have been really good at (using social media.), even if...For example, they posted something on Halloween. They had newborn baby on costume, and we sent something there like our baby's first costume, you know. Maybe half or a dozen people started posting pictures. I think even the name of newborn screening would cause negative comments just because of that name of the organization. So no, we didn't directly try to talk about those issues but we didn't avoid talking about Newborn screening organization because of the controversies or the comments there, because they really haven't happened that much.

Researcher: OK. Who came up with the idea of posting halloween picture? That seems a good idea.

Interviewee: I think it's from a group of people who working at the Newborn Screening. I have contacts. I work with one particular person, Bridget. They work together as a team, they've been sending us posts, pretty much every month, usually once a week. Usually send us in advance. They've been pretty creative. They also have an easy thing because they are talking about baby, and they just found really cute pictures baby. It gets pretty good response. They get people to look at it and people can tell about their stories. That's been great!

Researcher: Yeah, very good idea. As you said those are two very helpful divisions, I wonder as MDH such a big department, does each division has its own communication team and social media account?

Interviewee: Primary we just have the main Facebook and Twitter account. As far as what happens at the program level. It really depends on the staffing. Some of our offices and divisions, they might have one or more people who are designated as communication folks, some areas don't have any. So it varies. However they all have someone in our office, the public information office that they can coordinate with and should coordinate with. Anybody is welcome to send us posts because we have online forum. I sometimes help them rewrite it.

Researcher: Do you review or censor the content?

Interviewee: We sometimes help them rewrite it. Because I also get that you know Newborn screening is an example of our program. They pretty much send, every month they give me the posts, and they are ready to go down the Twitter, I mean they have raw materials already and they have maximized the characters.

Researcher: How many posts do they give you?

Interviewee: I would say that probably six to ten a month. Their stuffs are already to go. In fact if I want to change anything I will go to them and say hey this is where I want to edit. But you also have the other extreme. Sometimes you may get posts from other programs and they would say this is good for Twitter, Facebook, or other social media and they will contact me and contact the information officer. But they really... coz of their experience and ability, we will then sometimes help them write the whole posts.

Researcher: How many people are helping you on this?

Interviewee: I would say it's a fairly small number.

Researcher: I think besides social media you also do other jobs

Interviewee: Yes, yes, yes. It's not a full-time job. I actually don't have much time specifically to work on social media. I'm more of helping with the logistics.

Researcher: I also talked with people at MDHS, and one communication staff told me that social media only takes up 5% of her workload. Is this the same to you?

Interviewee: Sometimes it's more and sometimes it's less. 10% maybe... We had an intern in summer.

Researcher: Was the intern helpful?

Interviewee: Yes just straight from the time, yes it was helpful. Because I don't really have designated percentage of time that is supposed to be spent on social media. And there are many other things I'm supposed to be working on so I don't really have the time to monitor it or be more proactive in that sense.

Researcher: Do you guys use analytic tools to help manage social media sites?

Interviewee: We have been using Hootsuite so far. Most times we just watch streams and sometimes I use it to post. We only use it for Twitter now. The nice thing is that it can publish and schedule things in advance. We started using that. And of course now Facebook let you schedule posts, we've started using that as well. Monitoring is not something that we would do a lot right now and I think it's probably again much of the time factor.

Researcher: I read your tweets before. More of them are informational and there are some showing interactive features. So in what way do you want to use social media? Do you want two-way communication?

Interviewee: I think it's always been our goal, and still is our goal. Because we have the information that we need to get out to whomever it is. Whether it is the public or local health partnerships. There are lots of information pushing. I think this is an area that we should improve. You know, take the time to read the posts and think this one maybe wrote differently to get more replies. Generating more sharing, etc. It's always our goal.

Researcher: Is there any policy on using social media?

Interviewee: Yes we do have a social media use policy. It is for internal use. It's like if you are on social media as an individual, we do have some guidelines on how you should act, when you should identify yourself as an employee, how to clarify or speak on behalf of the state department. Anything that we post on our department page is always posted by one of our staff.

Researcher: Is this policy or regulation posted online?

Interviewee: It's not posted externally.

Researcher: Is this a statewide rule to have a social media policy?

Interviewee: No. We did it and we model something after some other organizations.

Researcher: So you mentioned before that it is a collective idea to use social media. So I wonder what the decision-making process look like, regarding what social media platform to use and how to use it? For example, if I suggest you to use instagram because it is a picture sharing site and is very popular among young people. Who would you talk to decide whether to open this new account?

Interviewee: We will discuss about it in our communication office probably in our staff meeting. We would also talk with people in other executive teams.

Researcher: So far, what are the biggest challenges you feel when move to the next level of engagement on social media?

Interviewee: I think the biggest issue we got is really the time. We had a brief period of time when we had an intern to work on that, and that's great. It's certainly a possibility that there could be a position that is more permanently. I think this is a big barrier because others and myself are doing it as a part of our job. I am not sure whether we need to have someone to work 100% on social media but there is an expectation that someone can spend certain amount of time on social media. Coz we have ideas and we have platforms, so the barrier is not the technology. The barrier would be which piece of technology do we use and whether we have the person to spend enough time on that.

Researcher: Do you believe that social media will make a difference in MDH's PR and communication?

Interviewee: I think it's important and it should be used. But it is just another communication's tool.

Researcher: What is your goal and expectation in the next three years?

Interviewee: Again, we would probably want to increase engagement. I think we would probably do things as you mentioned such as Instragram or other platforms out there. Look at the long-term trends of social media and develop something that is little more routine. We want to stay involved and we want to continue to improve our presence and engagement, and make sure we use it effectively.

No.2 IT staff working with MDH

Interviewee: Michelle works with MDH but she is actually an employee at MNIT. So currently we don't have any MDH technology positions.

Researcher: OK. Thank you Michelle for talking with me. Could you talk about your position at MDH?

Interviewee: So there is legislation two years ago that consolidated all IT positions in the state into a new agency called MN.IT. So...somebody at some point decided that web staff should be IT...So...now our web people at the health department are actually MN.IT staffs, it's almost contractors sort of... We are MN.IT employees but we work at Health.

Researcher: So all the IT work across all the state departments is centralized in MN.IT. Do you have people work with you at MDH?

Interviewee: Yes so there is an office in MDH and there is an office at MDHS, etc. Yes I have people work with me at MDH.

Researcher: Do you think it is better to work this way?

Interviewee: Personally I don't think the legislation was a good idea. It saves tons of people because they consolidate our licensing, so our licensing is done in an enterprise level so that they can coordinate us better. Each agency is doing its own contract. But MNIT is trying to do its branding efforts and make all IT people exchangeable. Since I have been put in to both context world and IT world, I'm kind of stuck in the middle because I have subject matter knowledge, which is public health. But now they try to shift that away from us having that context expertise.

Interviewee: That was kind of what I was explaining that we used to have a webmaster, but now we don't have that. We had a web manager but she left a year ago, and they didn't really ever fill her position. So I'm doing a part of her job and someone else is doing a part of her job.

Researcher: How does IT work with social media here at MDH? Do you help with social media operation? Or help social media staff use data driven techniques on social media?

Interviewee: So IT, except for me, I see has no one really in social media. It's managed by the communication office here. So I was an administrator before I was even in IT, so I just capture that role. But in other ways, there is nobody else in IT that has involvement in social media.

Researcher: What about the data used in social media? Or data privacy, security issues? Not everyone has the access to the MDH's account, right? So do IT staffs monitor the use social media?

Interviewee: As far as analytic that kinds of thing, not so much... communications are considered as editors of the website so they will direct IT. For example, there is a new social media platform that we want to add to the MDH website, they would say now we have LinkedIn and we want to have a LinkedIn icon, and IT would implemented it. And it would be me because I'm kind of in communications but there are people besides me who have the access to do that.

Researcher: Does every department have MNIT staff members?

Interviewee: It's all over the board. The webmaster and collusion control is not IT. That's what gets really weird because some agencies considered them ITs and some agencies consider them communication. So that's why it gets confusing.

Researcher: If the IT is centralized, it means MNIT has the control or supervision over almost all the agencies. Is there an IT policy or social media policy for securing the information and sharing inter-government?

Interviewee: That'll come in through the communication team.

Researcher: I thought there could be one from the IT's perspective for data security and other concerns. Because the IT people are working with almost all the agencies and they are centralized. If they have a sharing protocol and information security regulation, that'll make things much easier.

Interviewee: They don't have a security regulation, but they do have a license agreement. So for the terms of use, it took forever for us to get a YouTube channel, because our lawyer won't allow us to have a channel because of he terms of use.

Researcher: So you want to apply for a YouTube channel, you have to go through the technology department.

Interviewee: So they did a specialized agreement with YouTube for all state agencies, and that's coordinated from MNIT.

Researcher: But that's not really technology problem. That's kind of a policy issue. I thought each agency applies for the YouTube page themselves.

Interviewee: Yeah, we applied for it but our lawyer wouldn't accept it. So instead of getting a different licensing agreement, they just want one and have every agency to contact you to get their own.

Researcher: That'll take it forever.

Interviewee: Term of services

Researcher: Do you guys pay for that?

Interviewee: No we don't.

Researcher: So the account that MDH uses is different from an individual one?

Interviewee: Yeah ours is different from a standard one. It's basically says that you can be sued if ...it's about being sued and other legal stuffs.

Researcher: Interesting. I didn't know that.

Interviewee: We want to Facebook two years even before we got that because it is stuck in legal issue.

Researcher: You guys cannot just apply and use it, No?

Interviewee: No it has to go through them. When you are signing up personally, you click on "agree" to their terms of service. You are basically doing it as a MDH employee. But anytime you download anything there was a warning there. You just click yes, yes, yes. No one reads that, but our lawyers do.

NO.3 Social media staff in MDH divisions (Newborn Screening & IDEPC)

Researcher: Well, thank you guys for coming here. And I really appreciate that. Actually this is an excellent finding for me. I didn't realize some agencies have their divisions for social accounts. And I didn't feel they worked very well, coz I know most of state agencies only have one account listed on the government website. And half of them really don't do them very well. So my finding is to show that more than half of the content are informational, like 56 percent. I kind of collect the latest 100 tweets from the official account. And I see 56 percent of them are informational, just simply there're just posting news release etc. And some of them have basic or entry-level degree of interactions. For example, I posted a survey, or I post a job recruitment information, or I ask you for some opinions or something like that. The reason I took the Department of Health as an example is because I had an interview with them before and they expressed their willingness to do more interaction work with the citizens. And they are different works but actually they are doing very well. Gary told me that in the division account, you guys are doing something very interesting. So I

wonder if you could talk about it?

Interviewee: Yeah, I think like other state agencies MDH is similar and there's one Facebook account and one twitter account. And what Bridger and I have been doing a lot of is for our specific area that we've been working, sending Gary a lot of content and ideas for the institute on the social media to be more interactive and interesting and visual and all that kind of stuff that we want the social media to be. So I think for Newborn screening and IDEPC where I am, I think we would be able to send more content to him from those two and like other programs in the agency coz they don't have people who are kind of more actively thinking about it. And one of the helpful things is incorporating it into all of our communication work that we do and making sure that's part of a bigger communication plan, and being kind of strategic and trying to find things that are going to be engaging people on social media since it's a different kind of platform than another type. It's not just a website or it's just to test if you want to be more engaging. So that's a try to do I think.

Researcher: So in these two divisions, which one has its own account?

Interviewee: We both contribute to the same MDH account. MDH just has one account. And I was in newborn screening so I sent content to the central office and all of other divisions are on the same. It's a lot of different topics and there's a lot of different people of NBH are creating that content, sending it the communication team here to post. So the content just comes from a bunch of people from MDH and then they'll just come through and get published. So neither of our divisions has a separate account.

Researcher: Would you prefer to have your own account, a separate one?

Interviewee: Um. In some ways, yeah! Coz it'd be nice to just control that or manage it, but it also it's time-intensive for anyone doing social media to continue to post frequently and regularly and make it engaging. So it would be great, but I think there's always that you have to make sure in our division you have that dedicated person to do it. And right now it's worked out well that the whole agency just have one account, one Facebook account and one twitter account, with Gary kind of being the main person who post stuff to it, just because for the amount of stuff that we are able to generate, the content, it's enough to keep these accounts going but once you start a smaller thing, part of it is a sad time. It would be nice to have things that are a little more focused on the topic areas that some of these really interested in doing that and some of these are just really interested in infectious diseases. They won't be getting all that other messaging coming through. So that might be nice for some people who are interested in a certain topic, but again it just kind of depends on the capacity to generate enough content to keep it going. I guess.

Researcher: So do you think, as you said, the social media capacity, both you and Gary and also other departments say, "We are kind of lack of staff." Is that

because of the budget, or because of the professionalism, training... So what makes this lack of ability?

Interviewee: I think some of it may be budget. I'm not totally sure. Coz it's not Gary's full time job to do social media. And so they don't have somebody right now in the communication's office that is just doing social media. I think ideally they would maybe like to have that since its being used more, but that just all again falls into budget and getting several approvals from certain higher persons and going through all that process, so it would be just a matter of if our brand name can do that. They did higher... he is a summer intern. We had an intern, a student doing some social media with the communication's office over the summer, so she helps me to kind of be the person who can take some of work off from Gary and go out and find content from different departments and she was focused just on social media. I think they are trying to move towards that direction finding someone to do that and help. But it's a never. They have a full time, and It's impossible to pay someone, you know, all that good stuff.

Researcher: So do you think the goal of the division office using social media is the same to the overall MDH office? or you may have different audiences and objectives?

Interviewee: Yeah. To have a more specific audience to liven up the page. It will only be people that probably wanted to have their babies soon. We will have more narrow audience rather than through MDH. Most people who sign up for or who like MDH who want to be consuming its content have no clue and don't really care. And you don't really want them, though. So our goals and our target audience are definitely different. We want to talk to specific people and we want them to do specific things.

Researcher: Do you think your division has the needs to talk to your target audience? And do you know who your target audience is?

Interviewee: We do. And MDH in general has a much broader audience. So our audience overlaps some but not entirely. But if we have our own page, not only will we need more staff time and that'll be more challenging and we'd also have to work harder to get that audience coz we're benefiting from having a broader audience. People are pondering who are seeking it out.

Researcher: It would be more beneficial if people say, "OK, I find this piece of information is very interesting, so where I can get more information. And if you have your separate page that can be directly linked to the page."

Interviewee: Well, we do have separate website pages but not social media pages. We always link those social media pages to our website pages.

Researcher: But if possible, would you like to have your own social media page?

Interviewee: That's a tough question. Staffing time. Yes I would. But where we are right now, I don't know that would be a great thing. Coz I don't know who could maintain it to the level that would be effective.

Researcher: I noticed that both for the agency and also division, you know, staff and training and budget, these kinds of concerns really have a strong impact on their use of social media.

Interviewee: And whether they are or not, you know, whether happen for a good use to stay money for a full time social media person in Division. That may not be a good use of public resources. In here it would be. It probably depends on the specific needs and programs.

Researcher: How about campaigns? Do you guys launch campaigns on social media?

Interviewee: We have done some campaign stuff. I worked a lot in communication programs. For example, every flu seasons we try to send messages to very broad audiences because eventually pretty much a lot of them will need to get flu shot. So we have done a couple things. Last year and this year we are doing a Twitter Chat during national influence of vaccination week, which is in this year on December 11. We are partner with Mayo Clinic and Star tribune to do that chat too because the audiences are really broad. That's a great chance for us to engage with citizens, the publics, or health professionals who ever want to participate. We also invited experts to answer questions about flu vaccine. During that awareness week we tried to engage people with a Twitter chat, and we have done that a couple of times.

Researcher: Was that successful?

Interviewee: Yeah! The first time we did it two years ago, and it was just us but it was still successful on a small scale. And last year we did it with Mayo Clinics and Star tribune because they have big follower on Twitter. That helps us build more reach have more people to engage with. So having these partner, you knower, the broader community definitely helped. It was successful reading a lot of people, delivering good information out there. So we know people are on those sites and we want our people to have good, accurate information so that's one of our reasons to be on social media because we want to make sure that we are getting good health information to people.

Interviewee: Especially with something like immunization. There a lot of misconceptions or fears and others on the Internet or in social media. We can be there and send credible information that hopefully helps someone who is afraid of their baby getting vaccine or something like that. We can let them know that "it's actually safe". So it is part of our goals. And many of our messages are around that.

Researcher: Do you have a social media plan? For example, what to post, when to post,

etc.? How do you work with the MDH's communication team?

Interviewee: Yes I do in my program. We generate content usually in monthly cycle. And when things come up we post them right away. For examples, new articles come out, or new campaigns come out. When that happens, we will have a quicker process to post them. But for those generally things like holidays, I have them ready a month ahead, so that allows enough time for the approval to go through.

Interviewee: Ours is so much monthly like that but I do some more things you know when campaigns coming up or during holidays. I drafted out messages ahead of time so we can get enough time to get them approved and have time to go whenever the campaign comes up. Of course things happen every day and you don't know so a lot times I just send an email to Gary and say something like "Oh, we just saw this video, or this paper, or this news article, can we share it right away?" But yeah we do have some process and steps of approvals that you will have to go through.

Researcher: I see. Does that bother you?

Interviewee: Well... Sometimes it's nice to have some other people to review your stuffs. More eyes on something is good. Different perspectives are good. But it does take away from especially the social media something like emergency or immediacy in response because you have to get it checked by many people. So again it is a double-edged sword. You want to be quicker in responding things but you also want to make sure that it is correct and accurate.

Interviewee: Sometimes it is not good thing because you don't get to people on time.

Researcher: How do you use social media to be more transparent and interactive online? Do you see people's negative comments?

Interviewee: We sometimes use Twitter ads. We have grant money. The immunization program has a HPV grant to do communication campaign. So this is just a small piece of it. That was a time when we got more negative comments coming in because they were going out on people's pages who didn't like MDH already. If they don't agree with health things they will probably not follow the state health department on social media. So it kind of makes sense to me that our audiences currently who are connected with MDH are already interested in health so we would have less negative comments from them.

Researcher: But anyway the information has been sent.

Interviewee: Yes! The vast majority of the feedback, even on the paid posts, is all positive. It is a very small amount of negative feedback. It was not more than the average time because it was going out to more people. It really balanced the effects of the posts that have been likes, shared, and other

positive comments that are far outweigh the negatives. So in that perspective, it was very much a positive experience. Maybe in the future MDH moves more towards these types of things if they have the budget to do so, for example, advertising on social media, it is another way to get to target audiences. For example, if you only want to target in Minnesota versus something national; or you only want to target on kids between 0-4, you can use the advertising tool to target them. It's a lot easier to reach your audiences.

Researcher: Do you have regular meetings with the central office on the social media planning?

Interviewee: No, not such on regular meeting for me. It's more when certain campaigns or times of year are coming up, and usually involved with other meetings. It's more sporadically not as scheduled. But I do keep it on my calendars and send posts to the central office.

Researcher: Based on your experience, what is the most important thing you think in governmental social media use?

Interviewee: I think it's always a challenge to make sure that you are stay on the top of it. It's not our full-time job on social media. There obvious challenges to make sure that you lock up the time for social media and do it strategically. It's easier just put something there. I think it's important to step back to see what's our goals, and what do we want to achieve.

No. 4 Social Media Professional 1

Researcher: Thank you for talking with me! Could you tell me more about your current job with social media?

Interviewee: No problem! I am working at Starkey Hearing Foundation, a nonprofit organization serving people who have hearing problems. I am responsible for strategic planning, content development and community management of Starkey Hearing Foundation social media channels such as Facebook, Twitter, Instagram and YouTube. I also help manage the company's website, and additional digital assets. In addition, I work on editorial print writing, public relations and celebrity/stakeholder engagement strategies.

Researcher: Are you the only person working on social media? Do you have other colleagues work with you?

Interviewee: There wasn't one single person who is dedicated to social media. I devote 60% of my time to working on social media. I heard recently that they are going to have a person to work 40 hours, full time to work with social media or other digital media related things.

Researcher: It seems like your organization has many social media platforms. Does your organization have a social media strategy to guide the use of Twitter Facebook or the other sites?

Interviewee: We currently don't have a social media strategy but we are formalizing it but we have been making lots of progress as far as even just very simple things such as here is how often we should post, here is what photo should be posted and to make everything looks right. What is optimized for Twitter, Instagram or Facebook. As to Facebook, we do more storytelling. For example, share inspiring stories of our patients to encourage people.

Researcher: Interesting. What did you do to make your social media posts on Twitter and Facebook more engaging to your audience?

Interviewee: We did that quite a bit. I've found a few screenshot examples for you to reference. More can be found at www.facebook.com/starkeycares. We tried to use storytelling as much as possible. We found that posts that include a person's name, age, location and something that makes them unique always got higher engagement than posts without that information.



Researcher: What about target audience? Do you know who your target audiences are?

Interviewee: When I was there, we had not yet identified our target audience. It's a big hole in Starkey Hearing Foundation's social media strategy. Ideally, an organization would have at least one primary target audience (and maybe 2-3 secondary audiences) that they would target on social media.

Researcher: I wonder if making engagement is the goal of using social media? If so, how would you define "engagement" on social media, and how do you tell a good or bad engagement?

Interviewee: I think it depends on the marketing goals of the organization. If you are trying to raise brand awareness, then I think reach and impressions are most important. If you want to be engaging and have your audience interact with you, then the most important metric is engagement. Each social network measures these differently-- which is frustrating -- but generally engagement counts as someone taking an action with your content: clicking, sharing, retweeting, liking, commenting, replying, etc. Unless there is a crisis and your brand is facing a lot of negative comments, most engagements are "good" engagements.

Researcher: Could you talk about what are the major challenges and concerns when operating and managing social media? Any budget concern?

Interviewee: This will always be an issue for nonprofits where money is tight. When I was at SHF, I was 65% dedicated to social media, 35% dedicated to communications/PR. I think if an organization wants to really be effective with social media it should have a full time, dedicated resource focusing on it. Outside of staffing, social media can be done for free or cheap (under \$10K/year). We were lucky to have a full time photographer on staff, which helped me run social media with no budget at all.

One of the biggest challenges I faced was working for a family-run organization. They were especially sensitive about the type of content we posted, and they all had conflicting personal opinions on what we should post, how it should be written, etc. It was stressful, and it made it really hard for me to be strategic with our postings.

Researcher: I saw there are so many interesting campaign pictures on your organization's Facebook. How do you use Facebook to create more buzz or connect with more people?

Interviewee: A great example is the work we did with Spotify in May. We collaborated with their corporate social responsibility department to get featured on their website. It was a way for us to use the partnership strategically to raise brand awareness, gain followers and build the brand. Here's the campaign: <https://spotify-change.com/en/projects/first-song>

No. 5 Social Media Professional 2

Interviewee: So can you tell me more about your research about MDH?

Researcher: Hi Gary, here is a summary of MDH's current social media performance. As many public organizations, MDH has problems with resources allocation. And different from business sector, public health organizations do not generate profits. The goal of social media use in MDH is to increase public awareness, educate people, and engage with them. However, currently most of their Twitter content are informative, or in one-way communication. Facebook is relatively interactive but only one or two divisions create lots of content. My question would be, from a content strategy's perspective, how could they improve their social media use to be more engaging with wider and diverse audience?

Interviewee:

Can you clarify what you believe the report is missing?

Clearly MDH may have an alignment disconnect with key stakeholders because the infrastructure appears to be lacking in sufficient strength to not only provide more and compelling (sharable, conversational, two-way) content but also the ability to listen and respond to any conversations that occur. I assume that like most healthcare organizations, they are constrained by evidence-based content that requires a multitude of filters, compliance and approvals. There are models that exist they could emulate in the healthcare space (most large insurance carriers like Humana, Aetna, etc., have to follow similar compliance guidelines). Most certainly NIH, which does a nice job.

There doesn't appear to be any possibility for a content audit or inventory to improve the scalability or channel adaptability for the content they are currently producing. Without access to segmentation studies they've done or data/analytics on success or failure of their current activities, there is little chance to develop a more data-driven strategy. Not sure if you have evaluated their content from the standpoint of value or creativity.

For example, do they employ:

Researcher:

- * SME's,
- * service style headlines,
- * video or images for use on other social platforms like Instagram or Pinterest
- * creative packaging or frames for their otherwise dull information

According to my finding, on Twitter, the majority of tweets are one-way messages, accounting for 75% of the total collected tweets. These short, direct messages mainly contain information about MDH's news release, health report, and quick facts of given health issues. MDH posts news and updates closely related to its work. Approximately 70% of those posts contained URLs, and most of them were linked to news release, report, or the department's web page with greater details. The posts without links are quick facts or notifications. Only 2% of the tweets are customized messages using Twitter's @-reply or mention function for direct conversation with a particular user.

Interviewee:

As to data driven strategy, although they understand the importance, they didn't do much data mining or analysis mostly because they do not have enough time or personnel to work on it. They use basic Twitter, FB insider an Hootsuite, and some divisions use more sophisticated tools such as paid ad service on Twitter during their campaigns. They use video or images mostly on FB and YouTube but they do not have Instagram yet. I also agree with your comment that MDH is disconnected with key stakeholders. They want to form a better understanding of target audience because the use of social media should be customer-centered as moving to an engagement level. However, I think it is hard for them to manage a large, aggregated group of audiences.

Here's a couple thoughts I had around this situation:

Due to their lack of resources, I would recommend that first and foremost they audit their social channels as well as their target audience to understand if the two are in sync. This is crucial to understanding, especially for smaller teams, what channels and campaigns should be given the most attention and resources. This would also be the time to investigate new potential channels that could be more effective with the current or potential audience. When doing this, make sure the platform also makes sense for the brand, i.e. do they have the visual resources and messaging to support Instagram? Would they rely on collaborative content?

Secondly, I think your analysis of the current content produced is great. Knowing that communication is occurring in a 1-way fashion is very revealing. If they choose to invest time into more collaborative social connections, then I suggest they spend some time with social listening. They could even use Hootsuite for this. Identify specific terms to listen for. Do some test searches and refine the terms as needed in order to achieve the kinds of results you're looking for. Create a new Stream for each Term or Phrase in Hootsuite. This makes it fairly easy to review and interact with relevant conversations.

Thirdly, I'd ask them to think big. What is their audience asking for? What are their pain points? How can they utilize digital to solve or address some of these things in a big way? If they can keep that front of mind, it will make everything they do more effective.

To address the different departments issue, I would suggest they set up a head editor and visual overseer to make sure all content coming in from other departments fits the voice, tone, visual standards, and schedule of the overall brand.

Knowing that visuals, infographics and other interactive media performs best, and knowing the staff is limited, I could see them curating these types of content from other trusted sources and partners. This will take a little time, but possibly less than creating new content/art each time.

I hope this helps answers some of those questions. Please let me know if I

missed something.

No.6 Social Media Professional 3

- Researcher: Hi Matt, thank you for talking with me. I would like to know more about your work experience with social media at the University's health department. Your insights will be used to support my strategic communication plan for MDH.
- Interviewee: Sure no problem!
- Researcher: Could you tell me something about your daily job?
- Interviewee: OK. I manage the social media content at the academic center, which is the home for the school of Dentistry, Medical, Nursing, Pharmacy, Public Health, and Veterinary Medicine. My work is primarily focusing on the Facebook, Twitter, YouTube and Instagram, reading from the account, find like things that are interested. We are trying to for a while just to know contact with our... what's going on with the academic health center audiences on a daily basis. Create the content, manage the content, work with my team and also have them (the schools) work with their particular focused areas and develop content that is interesting for our channels.
- Researcher: Ok, sorry your voice is a little blurry. As I can see on your organization's website, the academic health center has partnerships with six health-related colleges and schools at the U. So as you said you are working on for multi social media forms, how do you work for a diverse and large audience? Do you have tailored communication plans or communication strategies for each target audiences?
- Interviewee: Yes, that is the biggest challenge for us at the academic health center because here are so many... actually six schools that have been there, and there is a partnership with each of those schools, also each of them has different audiences and different stakeholders. Communicating with all kinds of audiences is a challenge it is a challenge. Since they are all about health-sciences, so we always take an approach to speaking with the average (audiences). For certain schools or certain subjects they have their own target audiences, whether the current perspective students, or donors, the messages for them will be different. So we focus a lot on research that they are doing, recent news... and we work with a lot of expertise on a wide range of topics that are important to them. We post the most interesting content and the content that we feel gonna be most impactful in a broad range of people, which are not necessarily hyper targeted or hyper focused. Certainly, individual schools and departments themselves, they have their own social media accounts, so they keep it in a different way, to keep connections with people they want to reach.

Researcher: So correct me if I understand it wrong. So as the overall account, you try to capture as many audiences as you can by providing content that is important or interesting to everybody. For particular health interests, divisions or schools will use their separate accounts to deal with target audiences. Is that correct?

Interviewee: Yes that's correct! If you think about it like you watch news TV or read StarTribune, the content they produced are for general, broad audiences. Their publications also meet the need of different types of people. So that is the approach we take. Our approach is to target more average and general audiences with useful information rather than something super, hyper targeted. Males or 25 or 45, with college education, etc...For most part, our audiences are educated. They are interested in health news and information. But they don't necessarily have health science background, so we don't provide very complicated information. We want our content to be easily understood.

Researcher: OK. Another question is about engagement. Do you see engagement as your goal or something you would like achieve on social media?

Interviewee: Engagement is tricky. For the most part, it's about how we measure the marketing, but a lot of times we don't get a lot of comments, you see what I say, we don't usually receive many comments, or retweet, those kinds of stuffs. So most of time the only thing we can get (measure) is the tweets. We always include links, or photos, or informative captions that provide some information that we want them (audiences) to know, read tweets, and they can educate themselves. If they share, or retweet, that's an excellent engagement. For the most time, we really want to get clicks on our content we provided, which will either lead them to news stories, or a blog post, such as our health talk blog. We want them to digest the information that we provide to them.

Researcher: It sound to me like Clicks are a more important indicator that you would look for other than shares, or retweets?

Interviewee: Yes, yes clicks are important. Clicks show that people pay attention to our content because sometime you read the news but you don't necessarily share or retweet.

Researcher: As you mentioned content, do you plan content ahead of time? Do you have an editorial calendar about what should be posted and how to manage the contribution to each of collaborating school or branch?

Interviewee: Yes, we have an editorial calendar. It's generally a pretty loose editorial calendar. We highlight a lot of, you know, program users, to guide people to develop a certain kind of content. But a lot of times, we will get calls from

media outlets that they want to comment on a particular study that came out from one of our researchers. And next day we will have news information to share but that is not necessary going into our editorial calendar. So we do have a content calendar to crack down our efforts to develop a lot of different content, for example, for health talk blog, or instagram, we had our content ready a head or time when we know that we have this interesting thing. Also photos are sometimes tricky, so we took photos in advance to prepare for content. It highlighted a lot the development of the content, so that's why we need a calendar.

Researcher: Are you the only person working in this job? Do you have colleagues to work with you on social media? Since you have content from different schools, do you have anyone to work on the message consistency?

Interviewee: I am primarily responsible for managing all the content. But I'm constantly asking other team members with their inputs and speaking their focus areas to have their opinions that can help me develop content. But it's definitely challenging because everybody can get pulled out to different directions. I'm hoping that we can start getting more controlled, structured, and well organized, because for the most time, I keep getting tweets and lots of ideas from schools... so... it's challenging sometimes.

Researcher: As a general account, do you know exactly who your audiences are? Are your audiences are an aggregation of each school's audiences?

Interviewee: Yeah, I mean, I do have some analytics for Twitter who is the main component of audiences and such things. I did put together something like a snapshot of who is person is. You remember in Steve's class that we had audience segmentation and profile. Do you remember that?

Researcher: Yes, I remember we had that in Steve's class.

Interviewee: Yes, so I did something similar to that. I kind of categorizing audiences into segments and look at what their personalities look like... etc.

Researcher: Is that a customer persona? So you categorize your audiences into different groups and tailor messages based on their characteristics?

Interviewee: Yes, that's something I try to work right now. I need to do that with our health talk blog especially. For Facebook and Twitter, the certain goal is to go through the details, but the same idea is there, we are trying to create profiles to understand whom this person is.

Researcher: That makes a lot sense to me. I have one more question about budget concern.

Interviewee: I have, haha, no budget...which creates many challenges. Our content and

the engagement are all organic.

Researcher: Sorry what do you mean by organic?

Interviewee: So you just put a post on Facebook or Twitter but do not use any advertising to boost the presence and reach. You can use advertising to reach more people. I don't have any budget to do anything like that. So I rely on shares, people's likes, people reading the tweets, etc. So I don't have budget, everything we do is organic. We create content and hope to generate likes, shares, followers.

Researcher: So no paid service for social media.

Interviewee: No, so what I do was not listed in my job description, I just started becoming myself.

Researcher: I think what you told me are very helpful. I will use them to create a recommended social media plan for MDH. Thank you very much!

Interviewee: No problem! Good luck!

Appendix 6. Social Media Data Sets

Data collected by using NVivo 10 for Windows

https://www.qsrinternational.com/support_faqs_detail.aspx?view=1213

NVivo 10 for Windows Add-ons

Access free NVivo 10 for Windows add-ons for capturing data from web browsers and OneNote.

If you're running the latest version of NVivo 10 for Windows then these add-ons may already be installed. **Read instructions** on how to check this.



NCapture



Use NCapture, a web browser extension, to quickly and easily capture web content (web pages, online PDFs and social media data from Facebook, LinkedIn, Twitter, and YouTube) for analysis in NVivo 10 for Windows. NVivo 10 for Windows can help you see patterns in your social media datasets with automatic visualization features, and you can also automatically code content to quickly group social media data together.

You can capture:

- **Web pages and online PDFs:** Use NCapture to gather web pages and online PDFs. Then import them into NVivo 10 for Windows as PDF sources.
- **Facebook wall posts and comments:** Use NCapture to gather Facebook wall posts and comments from people, organizations or groups. Then import them into NVivo 10 for Windows as a dataset source.
- **Twitter content:** Use NCapture to gather Tweets from Twitter—for example, Tweets that include a particular word, phrase or hashtag, or Tweets by a particular user. Then import them into NVivo 10 for Windows as a dataset source.
- **Import YouTube content:** Use NCapture to collect YouTube videos and work with them in NVivo 10 for Windows. You may also want to import comments as a dataset.

Username	Tweet	Tweet Type	# of Retweet	Hashtags
mnhealth	Attend @PedalMN #Bike Conference & learn how MN is building bike-friendly state May 4-5 MPLS https://t.co/zyqw1scRNQ	Tweet	2	Bike

mnhealth	News release: MDH releases plan to cut infant mortality rates, tackle disparities https://t.co/ll89BaJjRR	Tweet	2	
mnhealth	Today's public health news clips: https://t.co/nojwB0jsQO	Tweet	0	
mnhealth	News release: New MDH report shows HIV/AIDS cases increased slightly in 2014 https://t.co/GzecIQoGGd	Tweet	5	
mnhealth	Today's public health news clips: https://t.co/ss37AkoLsj	Tweet	0	
mnhealth	News release: MDH approves labs for medical cannabis testing https://t.co/kBaYAo85aA	Tweet	2	
mnhealth	Get Twin Cities highlights & neighborhood bikeways tours @PedalMN #Bike Conference May 4-5. Are you going? Details: https://t.co/zyqw1scRNQ	Tweet	2	Bike
mnhealth	Providers: do you work with expectant parents? Check out the new #newbornscreening pocket card http://t.co/93d3cHDg4E http://t.co/YVngztf8hf	Tweet	3	newbornscreening
mnhealth	Today's public health news clips: https://t.co/4RAiEzKDD6	Tweet	0	
mnhealth	Today's public health news clips: https://t.co/NZCKAevg3t	Tweet	0	
mnhealth	Olmsted County identifies obesity as a top health concern. Ehlinger visits. Community members discuss action steps. http://t.co/mwxhXaB1Jm	Tweet	0	
mnhealth	Protect babies from whooping cough by getting vaccinated. http://t.co/l8Oz6J3zqK #NIIW #InfantImmFact http://t.co/3BSUXJg1uS	Tweet	3	NIIW InfantImmFact
mnhealth	Know the facts: Half of all STDs are in people under 25 years old. #STDMonth15 http://t.co/a6ymoUFy2L	Tweet	0	STDMonth15
mnhealth	You can protect your baby from whooping cough before they're born! #NIIW	Tweet	1	NIIW InfantImmFact

	#InfantImmFact http://t.co/gjzIc8hYyF http://t.co/qJcDMb4ukF			ct
mnhealth	Today's public health news clips: https://t.co/PjgSIK9IXV	Tweet	0	
mnhealth	Q: What are the 14 diseases childhood vaccines protect against? A: http://t.co/TLTjBZrL4r #NIIW #InfantImmFact http://t.co/lPy3OMhN5g	Tweet	4	NIIW InfantImmFact
mnhealth	Vaccines help keep you and your family healthy, even during pregnancy. #NIIW #InfantImmFact http://t.co/oRVotIIFWg http://t.co/30DPiPbly5	Tweet	1	NIIW InfantImmFact
mnhealth	Small changes can go a long way toward preventing and managing #type2diabetes. http://t.co/NYhluimM3d	Tweet	0	type2diabetes
mnhealth	MDH Infectious Disease Dir Kris Ehresmann: monitoring those w/close bird contact. No human infections from avian flu. http://t.co/Y8VL3svXyk	Tweet	4	
mnhealth	Governor Dayton announcing declaration of peacetime emergency in response to avian flu cases among MN poultry http://t.co/kqxFod4M5c	Tweet	2	
mnhealth	The MN Weekly Influenza & Respiratory Illness Activity Report is now available: http://t.co/G5y7pYp8Gn	Tweet	0	
mnhealth	"Newborn screening saved my son's life." Ryan's mom tells his #newbornscreening story: http://t.co/aHgNViWP50 http://t.co/Jo6QviLnuN	Tweet	3	newbornscreening
mnhealth	Have Qs about Autism? Check out this video, in Somali language, of a Q&A session w/ leading experts in MN. #1in68 https://t.co/h6yuOHQUKrm	Tweet	2	1in68
mnhealth	The Minnesota Vaccines for Children (MnVFC) program offers free and low-cost shots. http://t.co/JbaOIvQUE5 #NIIW http://t.co/tO4ZIBqV7N	Tweet	4	NIIW
mnhealth	News release: Health Commissioner to Attend Olmsted County Obesity Forum	Tweet	0	

	https://t.co/PHoUWQ1NjH			
mnhealth	Vaccinate on time, every time. http://t.co/K87NYgh5x4 #NIIW #InfantImmFact http://t.co/3RyylvrxrHo	Tweet	0	NIIW InfantImmFact
mnhealth	Today's public health news clips: https://t.co/JCN9f2o1PJ	Tweet	0	
HealthTalk UMN	RT @HealthTalkUMN: ICYMI: No link between #MMR vaccine and #autism, even for children at risk for autism. http://t.co/zV7OIhXHUI	Retweet	15	MMR autism
mnhealth	Immunizations protect babies from diseases that can make them very sick. #NIIW #InfantImmFact http://t.co/RP76ogj1O7 http://t.co/agDALvXgaE	Tweet	1	NIIW InfantImmFact
mnhealth	News release: Minnesota physician receives Childhood Immunization Champion award from CDC https://t.co/s86qP2brFy	Tweet	2	
mnhealth	Diseases like flu can be very serious for babies. Read Louie's story: http://t.co/QqKFncRhNo #NIIW	Tweet	1	NIIW
mnhealth	The MN Weekly Ebola Traveler Monitoring Report (April 21) is now available: http://t.co/S8yHvohPjU #EbolaInfoMN	Tweet	0	EbolaInfoMN
mnhealth	Today's public health news clips: https://t.co/1WntXi0x0b	Tweet	0	
mnhealth	African Americans are twice as likely to be diagnosed with #type2diabetes as non-Hispanic whites. http://t.co/WGcUrH9L9m	Tweet	0	type2diabetes
mnhealth	It's #STI testing day! Check out these metro testing locations: http://t.co/4mkWdOgxJG #STDMonth15	Tweet	0	STI STDMonth15
mnhealth	Cmr Ehlinger speaking to Senate hhs committee: obesity curve going up nationally, but SHIP has helped MN buck trend. #mnleg	Tweet	9	mnleg
mnhealth	Today's public health news clips: https://t.co/pd6MsALsyz	Tweet	0	

mnhealth	Cmr Ehlinger testifying on House HHS bill: MN reputation as a healthy state due to wise investment, strong state/local partnership #mnleg	Tweet	1	mnleg
mnhealth	News release: Minnesota alone trims obesity rates among upper Midwest states https://t.co/E1KgsyUMTp	Tweet	14	
mnhealth	Berta tells her story of saving lives through #newbornscreening. #Lab4Life #MLPW #labweek http://t.co/cf65yjHM5e http://t.co/En58WViQQH	Tweet	2	newbornscreening Lab4Life MLPW labweek
mnhealth	Screen, counsel, refer and follow-up to prevent and manage #type2diabetes. Learn what your clinic can do. http://t.co/iRGbcyw5lR	Tweet	0	type2diabetes
mnhealth	News release: Chemical associated with long-term cancer risk found in New Brighton water https://t.co/Kqyq8z353J	Tweet	4	
mnhealth	Today's public health news clips: https://t.co/m3zhEN66RU	Tweet	0	
mnhealth	Our STD/HIV Partner Services Program can help with privately telling a partner about their exposure to STDs/HIV. http://t.co/2O5jjTezJX	Tweet	1	
mnhealth	Providers: Ask your patients about sexual risks to catch and treat STDs early. #STDMonth15 http://t.co/kUmext5zou	Tweet	0	STDMonth15
mnhealth	Small changes can go a long way toward preventing and managing #type2diabetes. http://t.co/NYhlui5aED	Tweet	0	type2diabetes
mnhealth	Most STDs don't show symptoms. It's important to get tested regularly. http://t.co/jbtadx0kJj #STDMonth15	Tweet	0	STDMonth15
mnhealth	Chlamydia is the number 1 reported infectious disease in MN. Learn more & get tested to prevent spread. http://t.co/RigOP9yys1 #STDMonth15	Tweet	1	STDMonth15
mnhealth	The MN Weekly Influenza & Respiratory Illness Activity Report is now available:	Tweet	0	

	http://t.co/G5y7pYp8Gn			
mnhealth	Cases of chlamydia, gonorrhea & syphilis went up in 2014 in MN. Education, testing & prevention are key to stop these diseases. #STDMonth15	Tweet	0	STDMonth15
mnhealth	Today's public health news clips: https://t.co/zfSF0iuGsQ	Tweet	0	
mnhealth	News release: New report shows STDs increased by six percent in Minnesota in 2014 https://t.co/r5uwwASEaF	Tweet	1	
mnhealth	DYK: Autism is more common in boys than in girls. Learn the signs and act early if you are concerned #1in68	Tweet	0	1in68
mnhealth	OH BABY! Ask your doctor about #newbornscreening. http://t.co/kTulXfyPmJ	Tweet	3	newbornscreening
mnhealth	Today's public health news clips: https://t.co/6KJ4UeXasG	Tweet	0	
mnhealth	@swcbulletin: SHIP fuels learning at Cottage Grove school http://t.co/eimfMMcu6U . @eehlenger audio comment http://t.co/fLm6MSwXti	Tweet	0	
mnhealth	If there was a vaccine against #cancer, wouldn't you get it for your kids? http://t.co/Quf8ISHSsq #STDMonth15 http://t.co/PIMjr01jZr	Tweet	3	cancer STDMonth15
mnhealth	Latinos are almost twice as likely as non-Latino whites to be diagnosed with #type2diabetes. http://t.co/H6qmrMCajL	Tweet	0	type2diabetes
mnhealth	UMN also helping in avian flu response - testing conducted at veterinary diagnostic lab. Team effort to protect Minnesota.	Tweet	1	
mnhealth	DNR Comm Tom Landwehr - DNR monitoring wild birds, asking public to report dead wild birds http://t.co/8kuObW4RX0	Tweet	2	
mnhealth	Today's public health news clips: https://t.co/h6YweDRRTI	Tweet	1	

mnhealth	MDH Comm. Ed Ehlinger at avian flu briefing: No human cases, but MDH monitoring workers from farms with sick birds. http://t.co/z7XRJj8gre	Tweet	3	
mnhealth	MN State Veterinarian Dr. Bill Hartmann kicks off media briefing on avian influenza. http://t.co/fHSCG9VIKM	Tweet	0	
mnhealth	Why is #hearing so important for children? Tell us what YOU think! #newbornscreening #EHDI http://t.co/aOdFpA9yHC	Tweet	1	hearing newbornscreening EHDI
mnhealth	Today's public health news clips: https://t.co/j0ShEZfPMW	Tweet	0	
mnhealth	As many as 1 in 3 MN adults have #prediabetes and are at high risk of getting #type2diabetes. 9 of 10 don't know it. http://t.co/ekJCEd0Kc0	Tweet	0	prediabetes type2diabetes
mnhealth	Some sexually transmitted diseases don't have symptoms. Only way to know for sure is to get tested #STDMonth15 http://t.co/iytqQ5f7BW	Tweet	1	STDMonth15
mnhealth	Happy National Public Health Week! #NPHW http://t.co/kfOxz6HOz2	Tweet	1	NPHW
mnhealth	In honor of National Public Health Week, check out little Evan's story of how #newbornscreening saved his life. #NPHW http://t.co/WGR3GgCYa9	Tweet	2	newbornscreening NPHW
mnhealth	7.4% of MN adults in 2013 were living with #type2diabetes. 1 in 4 don't know. Know your risk, take the test. http://t.co/mq4AliGIu9	Tweet	3	type2diabetes
mnhealth	#Smoking among youth has declined sharply since 2011! We continue to work on reducing tobacco's harm in MN. http://t.co/LuWxG9LhVz #NPHW	Tweet	1	Smoking NPHW
mnhealth	CDC kudos to MDH for using data to improve Greater MN care, learned 1 in 10 moms lacked timely pregnancy care http://t.co/ORfzCwulvK	Tweet	0	
mnhealth	Today's public health news clips:	Tweet	1	

	https://t.co/mJHwufL5Cm			
mnhealth	The panel encourages finding reliable sources of info on immunizations. Our website has a great list. #umnsph #nphw http://t.co/rOfB1D0DJ	Tweet	0	umnsph nphw
mnhealth	Starting a panel discussion w/ immunization experts and parents after watching Invisible Threat. #nphw #umnsph	Tweet	0	nphw umnsph
mnhealth	Joining @UMNpublichealth for a special screening of @InvisThreat for #NPHW. http://t.co/KLgS0xzuxO #umnSPH http://t.co/oX7fK2pP2A	Tweet	2	NPHW umnSPH
mnhealth	We work with many local partners to provide discount radon test kits! Find your local MN radon contact: http://t.co/udOwgRIUjI #NPHW	Tweet	2	NPHW
mnhealth	The MN Weekly Influenza & Respiratory Illness Activity Report is now available: http://t.co/G5y7pYp8Gn	Tweet	0	
mnhealth	Madelia has been helping create good health with #SHIP since 2009. See how partnerships have grown! #NPHW https://t.co/nq6BZM5TTW	Tweet	0	SHIP NPHW
mnhealth	We're working w/ communities across MN to reduce #tobacco's harm. Learn more about Tobacco-Free Communities http://t.co/lFvjptGkkZ #NPHW	Tweet	2	tobacco NPHW
mnhealth	Join us for "We Are Empowered Tea" on Apr 10 to raise awareness about the impact of #HIV/AIDS on women. #NWGHAAD http://t.co/rsiO7gAXuB	Tweet	0	HIV NWGHAAD
InjectionSafety	RT @InjectionSafety: Learn more about @CDCgov's #1andOnlyCampaign #NPHW http://t.co/ryMeKReWDO http://t.co/NH4t49qwQM	Retweet	1	1andOnlyCa mpaign NPHW
mnhealth	We recently established a Center for Health Equity. But, what is Health Equity? https://t.co/OmYB4pitRB #NPHW	Tweet	7	NPHW
mnhealth	Since November, 210 schools are providing Safe Routes to School for nearly 107,000	Tweet	1	SHIP

	students. https://t.co/sW7Anv93kN #SHIP #NPHW			NPHW
mnhealth	Parents: Check out these videos to learn about things to watch for as your child grows! (Somali & English) http://t.co/TyOIPEUCqv	Tweet	0	
mnhealth	Some homes in MN are at greater risk for high radon levels. http://t.co/IJyR7JzZgS . #NPHW http://t.co/lkWOsNZQNU	Tweet	2	NPHW
CFPmn	RT @CFPmn: Is your community working to eliminate tobacco inequities? Check out the latest funding initiative from the Center: http://t.co/...	Retweet	2	
mnhealth	Hoppy spring! #spring #newbornscreening http://t.co/6vVkUSAbq4	Tweet	1	spring newbornscreening
mnhealth	The MN Weekly Ebola Traveler Monitoring Report (April 7) is now available: http://t.co/znPALxE6ey #EbolaInfoMN	Tweet	0	EbolaInfoMN
mnhealth	Where we live can affect our health. Our Data Access Portal shows how disease rates vary in MN. https://t.co/7u3q83863M #NPHW	Tweet	3	NPHW
mnhealth	Article alert: Learn the Signs of Autism and Act Early. Includes Somali translation and videos. http://t.co/bXBkBqPJZt	Tweet	2	
mnhealth	Our youth smoking rate fell to 10.6%, but tobacco is still a problem. We need to do all we can to protect kids from tobacco's harm. #NPHW	Tweet	3	NPHW
mnhealth	About 40% of MN homes have high radon compared to 7% nationally. Learn how to keep radon out. #NPHW http://t.co/IJyR7JzZgS	Tweet	1	NPHW
mnhealth	Newborn screening offers life without physical disability. One of public health's greatest success stories. #NPHW http://t.co/i0q1VSbPxe	Tweet	8	NPHW
mnhealth	Great panel discussion closes out 2015 State of Public Health Forum - Working Toward Health Equity in Minnesota.	Tweet	0	

mnhealth	The number of American Indians & Alaska Natives who have #type2diabetes is growing rapidly. Act now know your risk! http://t.co/l6rh0PNb6u	Tweet	0	type2diabetes
mnhealth	Panel gets underway, Mike Guyette, CEO, BCBS, Stella Whitney-West, CEO, NorthPoint, Paul Marincel, ISAIAH. http://t.co/HHYjlbCZpK	Tweet	1	
mnhealth	Ehlinger ends with “Public health is what we, as a society, do collectively to assure the conditions in which people can be healthy,” IOM	Tweet	6	
mnhealth	Minimum wage increase was the biggest public health achievement of last year’s legislative session, Ehlinger. http://t.co/Ao0CPI48zH	Tweet	5	
mnhealth	Promote a health in all policies approach with health equity as the goal, e.g. MDH Paid Leave White Paper http://t.co/r79GdY7pUy	Tweet	4	
mnhealth	Health is not determined solely by medical care and personal choices but mostly by living conditions, Ehlinger.	Tweet	3	

Post	Tagged	Type	Likes
Celebrate America's birthday with ones you love. Family and friends are an important part of everyone's health and well-being. Happy #4thofJuly weekend Minnesota!		photo	3
People with sickle cell anemia are always in need of blood donations. Most children with sickle cell disease will need at least one blood transfusion before the age of 11 and often today children, teens and adults may receive a blood transfusion every two to four weeks. Find out if you are eligible to be a specific donor for people living with Sickle Cell Disease (PDF): http://www.mbc.org/Libraries/About_Blood_Docs/Sickle_Cell_Donor_Brochure.sflb.ashx		photo	7
Did you know the average restaurant meal is 4x larger than it was in the 1950s?		photo	28

Be a safe biker, wear a helmet. You don't wear a “brain-bucket” just because you might make a mistake, but because someone else might.		event	8
Test your STD and HIV knowledge to win prizes at our booth this weekend during Twin Cities Pride! #tcpride http://www.tcpride.org/		photo	7
Happy #BiketoWorkDay! Hopefully your commute was off the chain! (But not literally.) If you want to find a bike route near you, check out Explore Minnesota Tourism's awesome map: http://www.exploreminnesota.com/pedal-mn/all-bike-routes/		link	3
"If it wasn't for newborn screening, Sophia could have died from complications of her disorder." Sophia's mom tells her story: http://www.health.state.mn.us/divs/phl/newborn/families/stories/sophia.html		photo	40
The list of new Minnesota State Fair foods has been announced! We're excited to be back at the fair again this year to be able to try them! (In moderation of course.) http://www.mnstatefair.org/fun/new_food/		link	12
#NewbornScreening billboards have hit the streets of greater Minnesota! Anyone recognize where this one is?		photo	27
Wanna be the world's best father? Ask your doctor about #newbornscreening. Happy Fathers Day! http://www.awwwards.com/world-s-best-father-photo-project-by-dave-engledow.html		link	7
We're improving our process to notify parents and providers about #NewbornScreening results for #SickleCell trait. Learn more! www.health.state.mn.us/divs/phl/newborn/program/announcements.html		link	11
The Commissioner looks quite radish-ing today don't you think? Maybe it's something he ate... This week Commissioner Ehlinger has grown-in-Minnesota radishes on his plate. Radishes are full of vitamin C and are available May through October. As the weather begins to warm the flavor and variety of radishes changes as well. You can find farmers who grow radishes, and other Minnesota produce, with the Minnesota Grown Directory. Check it out: http://minnesotagrown.com/member-directory/	Minnesota Grown	photo	39
Did you know the average American is sedentary for 21 hours a day? Don't sit, get fit!		photo	11

Ticks are tiny, but they may carry diseases that can make you really sick. Keep them away with these tips: http://www.health.state.mn.us/divs/idepc/dtopics/tickborne/prevention.html .		photo	13
Are you interested in helping to improve care coordination for children and families with special health needs? MDH will be holding five regional meetings to do “systems mapping”, and we would like your help in identifying core components and key actions that can help improve care coordination in our state. Space is limited. More information is on our website: http://www.health.state.mn.us/divs/cfh/program/cyshn/content/document/pdf/ccmapping.pdf		link	4
Don't let a tick make you sick!		photo	4
Does your community have an emergency response plan for Sudden Cardiac Arrest? Become a #HeartSafeMN Community. http://tinyurl.com/pyklf66		photo	4
How do you get your fruits and veggies? Commissioner Ehlinger gets his in the shape of Minnesota!		photo	84
Do your weekend plans include walking your way to a healthy heart? http://www.heart.org/HEARTORG/GettingHealthy/PhysicalActivity/Walking/Walk-Dont-Run-Your-Way-to-a-Healthy-Heart_UCM_452926_Article.jsp		photo	2
Washing your hands is the best way to stop germs from spreading. But have you ever wondered which soap to use? http://www.health.state.mn.us/handhygiene/how/bestsoap.html		link	11
Are you at risk for #hepatitis? Take this online assessment to find out.		link	0
¿Qué es un examen universal de audición en los recién nacidos? ¿Por qué es importante? ¡Visite esta página web para conocer más! #BHSM http://www.audiciondelbebe.org/laudicionylaamplificacion/examen-audicion/indicio.asp		link	3
An Iowa mom shares her family's newborn screening story through a children's book released this week.		link	17
Do you know the #StrokeWarningSigns? Take the quiz to find out! http://strokequizapp.heart.org/		photo	2

Parents: Don't wait and see with baby's hearing. Those sounds and voices in the first months of life are critical! #BHSM		link	23
Parents: Is your child on track with speech and language? Learn the signs of hearing disorders. #BHSM #hearingscreening http://identifythesigns.org/		link	5